PROCEEDINGS

OF THE

MADRAS GOVERNMENT

IN THE

PUBLIC WORKS DEPARTMENT,

IRRIGATION BRANCH,

FOR THE

MONTH OF NOVEMBER 1890.

Printed by Authority.

MADRAS:
PRINTED BY THE SUPERINTENDENT, GOVERNMENT PRESS.

1890.

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FOR THE MONTH OF NOVEMBER 1890.

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GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following papers:—

Proceedings of the Board of Revenue (Land Revenue), dated 7th May 1890, Mis. No. 2834.

THE HON. J. GROSE.

From W. J. H. LE FANU, Esq., Collector of North Arcot, to the Secretary to the Commissioners of Land Revenue, dated Palmanér, 23rd April 1890, No. 691 Gl.-Eng.

In forwarding herewith a copy of my letter to the Executive Engineer, North Arcot Division, Reference on Gl. Eng. No. 691 of 1890, dated 17th February 1890, requesting him to take steps to include certain minor tanks irrigating more than 50 acres and affecting Villupuram-Guntakal Railway now under construction in the list of Imperial works, I have the honor to state that the matter has not yet been disposed of in the Public Works Department. As it is urgent that the responsibility for these tanks should be defined and charge be made over before the railway starts, I request that the Board will be pleased to move Government to order the transfer at an early date.

Resolution—dated 7th May 1890, Mis. No. 2834.

Submitted to Government with the request that, in the circumstances reported, early orders may be issued in the Public Works Department as regards the works referred to by the Collector.

(A true Copy and Extract.)

(Signed) M. HAMMICK,
Secretary.

No. 2898, Revenue.

Transferred to the Public Works Department.

OOTACAMUND,
10th May 1890.

(Signed) C. A. GALTON,
Secretary to Government.

Memorandum to the Superintending Engineer, V Circle, dated 19th May 1890, No. V 23-N.A.

From Colonel W. H. BURTON, R.E., Superintending Engineer, V Circle, to the Chief Engineer for Irrigation, dated Chepâk, 20th October 1890, No. 3347.

I have the honor to return your endorsement No. V. 23-N.A., dated 19th May 1890, and its enclosures.

2. The positions of the minor tanks affecting the Villupuram-Guntakal Railway have been marked on the sketch-maps; that of Kotala tank is not marked, as in its place Kotramangalam tank (No. 1 in the printed list of Imperial Irrigation Works) is entered; the site of this tank should be near Mamandur-Vedulacheruvu tank (No. 5 in the printed list).

3. A list of the tanks prepared in the form of the list of Imperial Irrigation Works is enclosed in which the Vandramtangal large tank (No. 8 in the Collector's list) has not been included, as it is already in the list of Imperial tanks as No. 31.

ENCLOSURE.

LIST of minor tanks affecting the Villupuram-Guntakal Railway line to be classed as Imperial Irrigation Works under the charge of Public Works Department.

Taluk.	Number on the map.	Source of supply.	Name of group or system.	Name of channels.	Name of tanks.	Cultivation.		Total of Imperial Works of each group of system.	
						Area.	Revenue	Area.	Revenue.
						ACS.	RS.	ACS.	RS.
Chittoor ..	460	Rainfed.	..	..	Nangamangalam tank.	158	837	..	..
	459	Do.	..	..	Marakalakuppam tank.	71	386	..	..
	458	Do.	..	..	Kottakota tank ..	73	439	..	..
Polúr ..	469	Do.	Sadarampattu tank group.	..	Sadarampattur tank..	126	613	..	..
	470	Do.	Karapundi tank group.	..	Karapambodi tank ..	55	215	..	..
Gudiyátam	461	Do.	Kalinjuru tank group.	..	Japharapettu tank ..	104	483	..	..
	463	Do.	Do.	..	Senuru tank ..	64	273	..	..
	462	Do.	Do.	..	Velandikal tank ..	80	490	..	..
Vellore ..	465	Do.	Tank group.	..	Ariyur Chittari tank..	121	676	..	..
	464	Do.	Do.	..	Torapadi tank ..	282	1,923	..	..
	466	Do.	Do.	..	Penattur Subdulli-puram tank.	154	1,114	..	..
	467	Do.	Do.	..	Veppampattu tank ..	220	1,324	..	..
	468	Do.	Do.	..	Kanikkaniyam tank ..	36	215	..	..

VELLORE,
17th September 1890.

(Signed) C. C. RAWSON, Major, R.E.,
Executive Engineer, North Arcot Division.

No. 169 I.

Submitted to Government with a recommendation that the minor tanks shown in the accompanying list may be added to the list of Imperial Works, North Arcot district.

2. The Kotala tank has been omitted from the list, as the Superintending Engineer states that it is already classed as Imperial under a different name.

3. The tanks should be numbered consecutively on the sketch-map from north to south as shown in the list prepared in this office.

CHEPÂK,
1st November 1890.

(Signed) G. T. WALCH,
Chief Engineer for Irrigation.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

ORDER—dated 13th November 1890, No. 654 I., Public Works.

The proposals of the Chief Engineer for Irrigation are sanctioned.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
„ Superintending Engineer, V Circle.
„ Examiner, Public Works Accounts.
„ Revenue Department.

IRRIGATION.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 13th.

Recd. *Encl.*

G.O., 13th Nov. 1890, No. 654 I.

NOVEMBER.

List of Imperial Irrigation Works, North Arcot District

The proposal of the Chief Engineer for Irrigation that the minor tanks irrigating more than 50 acres and affecting the Villupuram-Guntakal State Railway may be added to the —, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following paper :—

Proceedings of the Board of Revenue (Land Revenue), dated 15th October 1890, Mis. No. 6580.

MR. H. W. BLISS.

Read—the following letter from L. M. WYNCH, Esq., Acting Head Assistant Collector, to the Collector of the Kistna District, dated Bezváda, 15th August 1890, No. 867 :—

I have the honor to forward, herewith, for publication in the *Fort St. George Gazette*, a draft notification for the acquisition of land required for the Kanakavalli drain, as the parties have not appeared pursuant to the notices issued to them.

Endorsement of the Collector of the Kistna District, dated Masulipatam, 2nd September 1890, No. 7130.

Forwarded (with copy of the draft notification) to the Secretary to the Commissioners of Land Revenue for favor of publication in the *Fort St. George Gazette.*

Resolution—dated 15th October 1890, Mis. No. 6580.

Submitted to Government for approval and publication.

(True Extract.)

(Signed) H. A. SIM,
Acting Secretary.

No. 6485, Revenue.

Transferred to the Public Works Department (Irrigation Branch).

FORT ST. GEORGE,
24th October 1890.

(Signed) C. A. GALTON,
Secretary to Government.

ORDER—dated 13th November 1890, No. 655 I., Public Works.

Ordered that the notification be published in the *Fort St. George Gazette.*

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, II Circle.
" Revenue Department.

IRRIGATION.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 13th.

Recd. *Encl.*

G.O., 13th Nov. 1890, No. 655 I.

NOVEMBER.

Acquisition of Lands

Notification regarding — required for the Kanakavalli drain, Kistna district, ordered to be published in the *Fort St. George Gazette.*

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From Major D. McN. CAMPBELL, R.E., Superintending Engineer, Periyár Project, to the Chief Engineer, Public Works Department, dated Periyár, 27th October 1890, No. 1903 P.R.

I have the honor to forward, herewith, five completion reports for the works noted below, which have been duly verified by the Examiner, Public Works Accounts, who states that the excess outlay over the amounts of the estimates for the works requires the sanction of Government. The expenditure exceeds Rs. 2,500, which is the limit of my power of sanction :—

Name of work.	Amount of estimate.	Outlay.			Excess outlay.
	RS.	RS.	A.	P.	RS.
1. Quarters for foremen and office subordinates	3,960	4,659	15	6	700
2. Dam No. I Muleyapanjan ...	7,960	8,372	14	3	413
3. Do. No. II do. ...	6,969	7,727	12	5	759
4. Do. No. III do. ...	6,310	7,473	13	3	1,164
5. Special repairs to Executive Engineer's quarters	1,500	3,219	5	10	1,719
Total ...	...	...			4,755

Memorandum.

Submitted to Government. The reasons for the excess expenditure incurred on the works should have been summarised in the Superintending Engineer's letter in accordance with Circular memorandum No. 8 G., dated 7th June 1887, of the Chief Engineer for Irrigation.

(Signed) J. PENNYCUICK, Colonel, R.E.,
Chief Engineer, P.W.D.

6th November 1890.

ORDER—dated 13th November 1890, No 656 I., Public Works.

The Examiner of Public Works Accounts is authorised to admit the expenditure incurred on the works referred to, the aggregate excess outlay of Rs. 4,755 being met from the balance of the amount placed at the disposal of the Superintending Engineer for unforeseen works of the Periyár Project.

(True Extract.)

(Signed) J. PENNYCUICK, Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Superintending Engineer, Periyár Project,
with five enclosures.
" Chief Engineer for Irrigation.
" Examiner, Public Works Accounts.

IRRIGATION.
ACCOUNT.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 13th.

Recd. *Encl.*

G.O., 13th Nov. 1890, No. 656 I.

NOVEMBER.

Works in No. I Periyar Division

Authorising the Examiner, Public Works Accounts, to admit the excess outlay over the amounts of the estimates for certain —, the excess being met from the balance of the amount for unforseen works of the Periyár Project.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From G. D. WYBROW, Esq., Superintending Engineer, I Circle, to the Chief Engineer for Irrigation, dated Dowlaishweram, 20th October 1890, No. 1446 G.D.

With reference to pâra. 12 of your note printed with G.O., No. 374 I., dated the 7th July 1890, I have the honor to inform you that the estimate (Rs. 20,500) for diverting the river bank below Maskapilli lock, in the Godávari Eastern division, was approved of by you, in your memorandum No. 1-113 G.D., dated the 4th September 1890, and I request, therefore, that you will be so good as to obtain an allotment of Rs. 13,000 for the said work under "River Embankments, Repairs." The lump sum grant already given for the Godávari Eastern division, in the budget under the above head, is Rs. 8,000 only.

ORDER—dated 13th November 1890, No. 657 I., Public Works.

The sum of Rs. 13,000 required for repairs to river embankments in the Godávari Eastern division in addition to the budget grant of Rs. 8,000 is appropriated from the balance of the reserve under "Irrigation and Navigation works for which neither Capital nor Revenue accounts are kept," "Repairs," Rs. 2,990 required for establishment and Rs. 195 for Tools and Plant charges being transferred from Irrigation and Navigation works for which neither Capital nor Revenue accounts are kept to Agricultural works.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, I Circle.
,, Examiner, Public Works Accounts.
,, Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 13th.

Recd. *Encl.*

G.O., 13th Nov. 1890, No. 657 I.

NOVEMBER.

Funds

Providing Rs. 13,000 under Repairs, River Embankments, Godávari Eastern division, for diverting the river bank below Maskapilli lock.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper:—

From Colonel W. H. BURTON, R.E., Superintending Engineer, V Circle, to the Chief Engineer for Irrigation, dated Chepâk, 5th November 1890, No. 3663.

In continuation of this office letter No. 2554, dated 27th August last, I have the honor to request that the transfer of funds as detailed below may be sanctioned for North Arcot division from the existing grants of Rs. 20,000 and Rs. 55,000 under Minor New Works and Repairs, respectively, "Irrigation Works for which neither Capital nor Revenue Accounts are kept," to Extension and Improvements and Maintenance and Repairs, "Irrigation Works for which Capital and Revenue Accounts are kept":—

From Irrigation and Navigation Works for which neither Capital nor Revenue Accounts are kept.	RS.	*To* Irrigation and Navigation Works for which Capital and Revenue Accounts are kept.	RS.
		Extension and Improvements.	
		1. Poiney Anicut System	2,500
		2. Cheyaur do.	3,500
Minor New Works	6,000	Total ...	6,000
		Maintenance and Repairs.	
		1. Poiney Anicut System	15,000
		2. Cheyaur do	20,000
Repairs	35,000	Total ...	35,000

2. No transfer of funds is necessary for the present for Vallur Anicut System in Chingleput division as reported by the Executive Engineer.

ORDER—dated 14th November 1890, No. 659 I., Public Works.

The following transfers of funds are sanctioned :—

Provincial.
43. Minor Works and Navigation.
North Arcot Division.

From Irrigation and Navigation Works for which neither Capital nor Revenue Accounts are kept.	RS.	*To* Irrigation and Navigation Works for which Capital and Revenue Accounts are kept. Revenue Account.	RS.
		Poiney Anicut System.	
Minor Original Works	6,000	Extensions and Improvements ...	2,500
Repairs	34,506	Maintenance and Repairs	15,000
Establishment	9,316	Establishment	4,025
Tools and Plant	608		21,525
		Cheyaur Anicut System.	
		Extensions and Improvements ...	3,500
		Maintenance and Repairs	20,000
		Establishment	5,405
			28,905
Total ...	50,430	Total ...	50,430

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, V Circle.
,, Examiner, Public Works Accounts.
,, Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 14th.

Recd. *Encl.*

G.O., 14th Nov. 1890, No. 659 I.

NOVEMBER.

Funds

Certain transfers of —, North Arcot division, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper:—

From the Superintending Engineer, V Circle, dated 1st November 1890, No. 3567.

IRRIGATION—43. MINOR WORKS AND NAVIGATION.

STATEMENT of Savings and Demands for the year 1890-91.

No.	Division.	Names of works.	Amount of estimates.	Outlay up to end of last official year.	Existing grant for 1890-91.	Amount surrendered.	Amount applied for.	Remarks.
			RS.	RS.	RS.	RS.	RS.	
		IRRIGATION AND NAVIGATION WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT.						
		PALAR ANICUT SYSTEM. *Capital.*						
1	Chingleput ..	Providing new stone revetment and constructing a weir to Tirupakuli tank.	4,358	..	4,358	2,358	..	Allotment was given only in July last. The Executive Engineer reports that the contractor cannot carry out the work at the low rate sanctioned in the estimate.
		EXTENSIONS AND IMPROVEMENTS *Major.*						
2	North Arcot.	Kaveripak tank, raising revetment.	12,000	7,913	3,662	2,075	..	Savings on the estimate.
		CHEMBRAMBAKAM TANK SYSTEM. *Extensions and Improvements.*						
3	Chingleput ..	Lump sum grant	..	..	1,356	600	..	The estimate for renewing the bad plugs of Chembrambakam tank has been reduced from Rs. 1,280 to Rs. 680, hence the surrender.
		PALAR ANICUT SYSTEM.						
4	North Arcot.	Lump sum grant	..	..	9,492	..	2,075	Required for other works sanctioned.
		IRRIGATION AND NAVIGATION WORKS FOR WHICH NEITHER CAPITAL NOR REVENUE ACCOUNTS ARE KEPT.						
		MAJOR ORIGINAL WORKS.						
5	Chingleput ..	Utramallur tank improvements.	9,230	5,254	4,030	1,000	..	Work delayed for want of sanction to the revised estimate, which cannot be submitted till estimated cost of workshop charge is ascertained.
		AGRICULTURAL. RIVER EMBANKMENTS. *Original Works.*						
6	Chingleput ..	Lump sum grant	..	..	1,000	500	..	Estimate, amounting to only Rs. 494, is in hand against the allotment of Rs. 1,000.
		Total Savings and Demands ..	..	..	..	6,533	2,075	

(Signed) W. H. BURTON, Colonel, R E.,
Superintending Engineer, V Circle

ORDER—dated 14th November 1890, No. 660 I., Public Works.

The amount of Rs. 2,075 surrendered from item 2 is appropriated to meet the demand for item 4. The surrenders from items 1, 3, 5 and 6, aggregating Rs. 4,458, are held at the disposal of Government to meet future demands should there be any under the same heads.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, V Circle.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 14th.

Recd. *Encl.*

G.O., 14th Nov. 1890, No. 660 I.

NOVEMBER.

Funds

Orders on statement of savings and demands for 1890-91, Irrigation, submitted by the Superintending Engineer, V Circle.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From the Executive Engineer, Madura Division, to the Superintending Engineer, VI Circle, dated 23rd October 1890, No. 490 S.E.

I have the honor to report with reference to your memorandum, No. 681 M.D. of the 17th October 1890, that, soon after the receipt of your telegram, all necessary arrangements were made to file the appeal at a cost of Rs. 5 for stamps and vakalat.

2. The plaintiff, however, desired to effect a compromise which was recommended by Mr. French, Pleader, for my acceptance.

3. The conditions were : that I was to deduct from the sum due to the plaintiff the cost of defence of the suit in the Lower Court and to forego the expenditure of Rs. 5 on stamps for the appeal, and Mr. French in his turn agreed to forego his fee of Rs. 5 for the appeal.

4. As our appeal was a little out of time and the copy of judgment and decree had not then been received from you, I thought it best to close with the proposal, instead of awaiting the result of an appeal the admission of which was in itself uncertain.

5. The contractor's claim has been finally settled and the regulation fee of Rs. 57-8-0, due to the Pleader, paid.

6. I beg to subjoin a statement showing the total costs incurred and recovery effected therefor :—

	RS.	A.	P.
Pleader's fee	57	8	0
Stamp for vakalats for Messrs. Grimes and Russell	1	0	0
Pleader's fee paid by the latter for drafting a vakalat	1	0	0
Stamps for appeal	5	0	0
Total ...	64	8	0
Amount recovered	59	0	0
Balance to be written off	5	8	0

No. 730 M.D.

Copy submitted to the Chief Engineer for Irrigation for information, with reference to G.O., No. 576-A I., dated 11th October 1890.

2. Copy of judgment and decree were received back from the Chief Engineer's office on the 17th instant and were sent to the Executive Engineer on the same date.

3. Under the circumstances stated by the Executive Engineer, it is recommended that the sum of Rs. 5-8-0, irrecoverable cost in the defence of the suit, be ordered to be written off.

28th October 1890.

(Signed) A. C. SMITH, Lieut.-Colonel, R.E.,
Superintending Engineer, VI Circle.

Order—dated 14th November 1890, No. 661 I., Public Works.

The sum of Rs. 5-8-0 will be charged to office contingencies.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, VI Circle.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 14th.

Recd. *Encl.*

G.O., 14th Nov. 1890, No. 661 I.

NOVEMBER.

Suit

The sum of Rs. 5-8-0, being the irrecoverable cost in the defence of the — filed by a contractor in connection with repairs to the Chittanai anicut, ordered to be charged to contingencies.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following papers:—

From A. H. GARRETT, Esq., Executive Engineer, Tanjore Division, to the Superintending Engineer, VI Circle, dated Tanjore, 21st August 1890, No. 3502.

I have the honor to forward copies of the marginally-noted correspondence relating to the leasing out of nanal padugais belonging to the Tanjore Palace Estate.

No 282 of 11th July 1890 and No. 360 of 18th August 1890 from Receiver, Tanjore Palace Estate
No. 3059 of 22nd July 1890 from Executive Engineer, Tanjore.
G.O., No. 139 I., of 15th March 1889.

2. The Government Order is perhaps not perfectly clear on this point, but when read with the other letters which accompanied it, I think the obvious intention of the Government Order was to give us the right, conceded by the Receiver and recommended by the Board, of controlling nanal padugais to the extent required for conservancy purposes so long as the sale-proceeds were remitted to the estate.

3. If the estate leases out the padugais, we have no longer that control over them which it is essential we should exercise for conservancy purposes, and we shall be engaged in endless disputes with the lessees.

4. Moreover, it is probable that the estate will often lease out newly-formed padugais from which the nanal ought not to be cut, and in such cases the padugais are likely to get washed away and the safety of river banks endangered.

5. If we are to be held responsible for the conservancy of rivers, it is very necessary that we should not be interfered with in this way, and the reason given by the Receiver for not allowing us to lease out the padugais seems to show that he is no longer actuated by the liberal views set forth in his letter, No. 167, of 30th May 1888.

ENCLOSURES.

From the Receiver, Palace Estate, Tanjore, to the Executive Engineer, Tanjore Division, dated 11th July 1890, No 282.

Adverting to this office letters, No. 105, dated 9th May 1889, and No. 126, dated 13th April 1890, I regret to observe that the Government Order therein referred to has not as yet been given effect to in cases of padugais, &c., along the margin of the rivers passing through the estate villages.

I beg therefore that you will kindly arrange to hand them over to the Manager of the Tanjore Palace Estate without further delay, subject to the conditions laid down in the Government Order.

From the Executive Engineer, Tanjore Division, to the Receiver, Palace Estate, Tanjore, dated 22nd July 1890, No. 3059.

I have the honor to acknowledge the receipt of your No. 282 of 11th instant.

2. I gather from this letter and those which preceded it that you object to our leasing out nanal plantations and paying you the rent derived from them.

3. The Government Order referred to by you seems in my opinion to completely justify the course I have taken with regard to your padugais, and I cannot understand your taking exception to my action unless your views have undergone a complete alteration since writing para. 6 of your No. 167 of 30th May 1888, printed with the Government Order above mentioned.

From the District Judge, for Receiver, Palace Estate, Tanjore, to the Executive Engineer, Tanjore Division, dated 17th August 1890, No. 360.

With reference to your letter No. 3059, dated 22nd July 1890, I have the honor to state that, so far as I can see, the Government Order under reference nowhere confers the right of leasing padugais to the Public Works Department. The specific rights conceded to you are to cut and use nanal free of charge and to cut and uproot any other produce of the padugai when necessary, the proceeds in the latter case going to the estate; and the general right conceded is that of controlling the padugais so far as is necessary for river conservancy and no further. Now the right of leasing the lands subject to such conditions (and our leases will always contain such conditions) obviously remains with the estate which is the owner of the lands and is interested in getting as much out of them as possible after making the above concessions to your department. It has no guarantee that if the leases are granted by you they will be granted to the best advantage, because your department has no interest whatever in the matter. I request therefore you will be good enough to cancel this and similar lease granted by you.

No. 1081 T.I.

Submitted to the Chief Engineer for Irrigation for orders.

2. In para. 6 of the Receiver's letter of the 30th May 1888, No. 167, it is distinctly stated that he "has no objection to the Public Works Department having charge of nanal padugais and river embankments *to the extent required for river conservancy purposes*, provided the produce and the accretions arising therefrom are allowed to the estate." This proposal is fully approved and sanctioned by Government both in the Revenue and Public Works Departments—*vide* G.O., No. 139 I., of the 15th March 1889, in which the above letter is recorded. Under the conditions laid down in the above Proceedings of Government all that the Palace Estate can claim is the sale-proceeds of unused trees and grass and of other produce of its padugais in charge of this department. If the estate leases out the padugais, the control of this department over them would certainly be merely nominal, and there would be no end of disputes with the lessees as anticipated by the Executive Engineer. As long as the padugais in question remain in charge of the Public Works Department, the power of leasing them out should properly rest with that department.

(Signed) A. C. SMITH, Lieut.-Col., R.E.,
Superintending Engineer, VI Circle.

ORDER—dated 14th November 1890, No. 662 I., Public Works.

The Government considers that the position taken up by the Tanjore Palace Estate Receiver is legal and reasonable, and as he gives an assurance that the leases which he may issue will always contain such conditions as will secure to the Department of Public Works the right "of controlling the padugais so far as is necessary for river conservancy" and of cutting and using nanal free of charge and of cutting and uprooting it and any other produce of the padugais when necessary, the Government sees no reason to anticipate any injurious results from the lease being issued by the Receiver instead of by the Public Works Department.

2. The Superintending Engineer will therefore not in future issue leases or rent out in any way any of the padugais in question, but he should apply to be furnished with copies of such leases as the Receiver may issue.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, VI Circle.
" Revenue Department.

IRRIGATION.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 14th.

Recd. *Encl.*

G.O., 14th Nov. 1890, No. 662 I.

NOVEMBER.

Nanal Padugais of Tanjore Palace Estate

Orders regarding the issue of leases by the Receiver of the Estate instead of by the Public Works Department.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From Colonel H. SMALLEY, R.E., Superintending Engineer, III Circle, to the Chief Engineer for Irrigation, dated Bellary, 9th September 1890, No. 1695.

With reference to your memorandum No. 1351 T., dated 16th August 1890, I have the honor to forward a comparative statement for constructing a surplus weir to the Rayalcheruvu tank, Anantapur district, explaining the causes of differences between the original and the revised estimate.

Office-note from the Assistant to Chief Engineer for Irrigation, Tank Restoration Scheme, dated 28th October 1890, No. 1711 T.

Report to accompany the revised estimate for restoring Rayalcheruvu old tank, Anantapur district.

The original estimate for this work provided for entirely dismantling the old weir, which was reported to have been much damaged, and for building a new weir in its place.

2. The Executive Engineer, Bellary division, now reports that it is unnecessary to dismantle the existing weir. He states that it is a work of most massive character, that the stones of which it is constructed average 5 or 6 cubic feet in size, and are very carefully jointed and fitted together. He also states that the existing portion of the weir is practically uninjured.

3. It is therefore proposed to leave the existing weir as it is and to build the new one according to the original design in extension of it.

4. It is also found that a slight increase in depth will have to be given to the foundations owing to the bed of limestone rock on which the weir is to be founded dipping very sharply.

5. The bund has in places been topped and breached. No provision for repairing this was made in the original estimate ; a sum of Rs. 500 has now been allowed for the purpose.

6. These alterations, if carried out, will result in a net saving of Rs. 1,600.

CHEPÂK,
24th October 1890.

(Signed) H. E. CLERK,
for Chief Engineer for Irrigation,
Tank Restoration Scheme.

No. 168 I.

Submitted to Government with a recommendation that the revised estimate, amounting to Rs. 10,365, forwarded by the Superintending Engineer, III Circle, for restoring Rayalcheruvu old tank in Pennér river basin, Tadpatri taluk, Anantapur district, may be sanctioned.

CHEPÂK,
1st November 1890.

(Signed) G. T. WALCH,
Chief Engineer for Irrigation.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

ORDER—dated 14th November 1890, No. 663 I., Public Works.

The following revised estimate, amounting to Rs. 10,400, is sanctioned in supersession of the estimate of Rs. 12,000 sanctioned in G.O. No. 332 I., dated 14th June 1890 :—

Irrigation.
43. Minor Works and Navigation.
Irrigation and Navigation.
Works for which neither Capital nor Revenue Accounts are kept.
Anantapur district.
Original Works.
Tank Restoration Works.

	RS.
Restoring Rayalcheruvu old tank No. 8 in the list of "Imperial" works—Estimate	10,400

2. This sanction has been registered as No. 89 I. of 1890-91.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, III Circle,
with three enclosures.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1890} Madras.

PUBLIC WORKS.

I ated November, 14*th.*

Recd. *Encl.*

G.O., 14th Nov. 1890, No. 663 I.

NOVEMBER.

Rayalcheruvu Old Tank

Revised estimate for restoring the —, Anantapar district, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following paper:—

From C. VINCENT, Esq., Under-Secretary to the Government of India, Public Works Department (Civil Works—Irrigation), to the Secretary to the Government of Madras, Public Works Department, dated Simla, 22nd September 1890, No. 174 I.

With reference to your letter No. 429 I., dated the 11th August 1890, and in continuation of Public Works Department telegram No. 62 W., dated the 13th September 1890, approving provisionally of the schedules of works to be executed on the Godávari delta system, I am directed to point out that no provision for ordinary tools and plant appears to have been made in these schedules, and to request that this may now be done and the schedules revised accordingly, unless it is intended not to charge the works concerned with a share of their cost.

2. The completion report as given in paras. 7, 8 and 9 of the Chief Engineer's note does not afford sufficient material for a report to the Secretary of State, as required by clause IV of the new rules, and I am therefore to request that a revised completion report containing more details than those already given, may be furnished to the Government of India, together with the index map of the canals and distributaries referred to in para. 11 of the Chief Engineer's note, dated the 1st August 1890.

3. As requested, the enclosures of your letter under reference are returned.

ORDER—dated 17th November 1890, No. 664 I., Public Works.

Communicated to the Chief Engineer for Irrigation who will submit a revised completion report containing the details required, together with the index map of the delta canals.

2. The enclosures of the above letter will be returned to the Superintending Engineer, I Circle, with reference to para. 2 of G.O., No. $\frac{544}{A}$ I., dated 26th September 1890.

3. The provisional sanction accorded by the Government of India is registered as No. 93 I. of 1890-91.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
„ Superintending Engineer, I Circle, with four enclosures.
„ Examiner, Public Works Accounts.
„ Revenue Department.

IRRIGATION.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 17th.

Recd. *Encl.*

G.O., 17th Nov. 1890, No. 664 I.

NOVEMBER.

Godavari Delta System

Letter from the Government of India approving provisionally, with remarks, the schedule of works to be executed on the —, communicated to the Chief Engineer for Irrigation with instructions.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following paper :—

From C. VINCENT, Esq., Under-Secretary to the Government of India, Public Works Department (Civil Works—Irrigation), to the Secretary to the Government of Madras, Public Works Department, dated Simla, 14th October 1890, No. 182 I.

With reference to your letter No. 475 I., dated the 3rd September 1890, requesting sanction to a moiety of the estimated cost of repairing the Vedarniem canal being contributed from Imperial funds, I am directed to point out that the grounds for asking for an Imperial contribution in carrying out the work, which is a Provincial one, are not stated, and that the Government of India is therefore unable to accede to the proposal as now submitted.

ORDER—dated 17th November 1890, No. 665 I., Public Works.

Ordered that the following letter be sent.

(Here enter No. 666 I., dated 17th November 1890.)

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.

IRRIGATION.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 17th.

Recd. *Encl.*

G.O., 17th Nov. 1890, No. 665 I.

NOVEMBER.

Vedarniem Canal

Ordered that the Government of India be addressed in regard to the application to that Government for an Imperial contribution towards the cost of repairs to the —.

PUBLIC WORKS DEPARTMENT.

Irrigation.

LETTER—from

G. T. WALCH, Esq.,
Joint Secretary to the Government of Madras,
Public Works Department,
Irrigation Branch,

To

THE SECRETARY TO THE GOVERNMENT OF INDIA,
PUBLIC WORKS DEPARTMENT.

SIR,

With reference to your No. 182 I., dated 14th October 1890, I am directed to say that this Government asks for an Imperial contribution towards the cost of the extensive repairs required to the Vedarniem canal because without it the Madras Government would not be disposed to sanction any large expenditure on the repair of this work as it is of little use for purposes of general traffic. The only article largely transported on it is salt, the revenue from which is Imperial, and as the transport of Vedarniem salt by the canal and its subsequent ready sale tend to increase Imperial revenue, it was considered that a grant of Imperial funds in aid of the cost of repairing the canal was equitable. In this connection perusal of the inspection notes of the Chief Engineer for Irrigation printed in the Proceedings of the Madras Government, dated 16th April 1890, No. 233 I., and 21st August 1889, No. 395 I., is invited.

I have the honor to be,
Sir,
Your most obedient servant,

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

FORT ST. GEORGE,
17th November 1890

IRRIGATION.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 17th.

Recd. *Encl.*

17th Nov. 1890, No. 666 I.

NOVEMBER.

Vedarniem Canal

Explaining why this Government asks for an Imperial contribution towards the cost cf repairs to the —.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following paper :—

Proceedings of the Board of Revenue (Land Revenue), dated 30th October 1890, Mis. No. 6922 :—

MR. H. W. BLISS.

Read—the following letter from the Collector of Madura, dated 23rd October 1890, No. 436.

I have the honor to submit herewith draft declaration and schedule of lands required for Periyár works as per margin in the Madura and Dindigul taluks, and to request that the Board will be pleased to move the Government to publish the same in the *Fort Saint George Gazette* at an early date.

1. Additional land for the main channel near head-sluice at Peranai.
2. For straightening the Vadagarai channel at 1,100 feet from Peranai.
3. For tail channel at the culvert half a mile from Peranai.
4. For lascars and store sheds at the Ramarajapuram surplus weir.
5. For the extension of training bank at Ramarajapuram surplus weir.
6. For the surplus channel at Ramarajapuram.

2. The Deputy Collector, Madura division, may be authorized to perform the functions of a Collector under the Act and to take order for the acquisition of the lands.

Resolution—dated 30th October 1890, Mis. No. 6922.

Submitted to Government for approval and publication.

(A true Copy and Extract.)

(Signed) H. A. SIM,
Acting Secretary.

No. 6801, Revenue.

Transferred to the Public Works Department (Irrigation Branch).

(Signed) C. A. GALTON,
Secretary to Government.

ORDER—dated 19th November 1890, No. $\frac{668}{A}$ I., Public Works.

The notification will be published in the *Fort Saint George Gazette*.

(True Extract.)

(Signed) J. PENNYCUICK, Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Superintending Engineer, Periyár Project.
" Chief Engineer for Irrigation.
" Revenue Department.

IRRIGATION.

Govt. of {1890} Madras

PUBLIC WORKS.

Dated November, 19th.

Recd. *Encl.*

G.O., 19th Nov. 1890, No. $\frac{668}{A}$ I.

NOVEMBER.

Acquisition of Lands.

Ordered that the notification for—required for Periyár works in the Madura and Dindigul taluks be published in the *Fort Saint George Gazette.*

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following paper :—

From the Sub-Collector in charge of the Collector's Office, Tinnevelly, to the Secretary to Government, Public Works Department, dated Tinnevelly, 4th November 1890, No. 291.

I have the honor to inform you that a piece of land measuring 98 cents in the zemin village of Gollapati, Sátúr taluk, is required for the construction of head-sluice and flood bank to the channel supplying Nenméni tank. As the parties do not come to reasonable terms and as it is desirable, in order to ensure to Government an indefeasible title, to acquire the land under the provisions of the Land Acquisition Act X of 1870, I herewith forward a draft declaration under section 6 of the Act that it is needed for a public purpose, and request that Government will be pleased to order the same to be published in the *Fort Saint George Gazette* and to authorise the Deputy Collector, Northern Division, Tinnevelly, to take order for its acquisition.

ORDER—dated 19th November 1890, No. 669 I., Public Works.

Ordered that the notification be published in the *Fort Saint George Gazette.*

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
„ Superintending Engineer, VI Circle.
„ Revenue Department.

IRRIGATION.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 19th.

Recd. *Encl.*

G.O., 19th Nov. 1890, No. 669 I.

NOVEMBER.

Acquisition of Land

Ordered that the notification for — required for the construction of a head-sluice and flood bank to the channel supplying Nenméni tank, Tinnevelly district, be published in the *Fort Saint George Gazette.*

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From G. D. WYBROW, Esq., Superintending Engineer, I Circle, to the Chief Engineer for Irrigation, dated Dowlaishweram, 24th October 1890, No. 879 G.N.

I have the honor to submit herewith an estimate, amounting to Rs. 50, for repairs to Divisional office at Dogam, connected with the Rushikulya project, and to request that sanction may be accorded to the same.

2. The work has been carried out in anticipation of sanction to the estimate, and its cost will be met from the lump sum provided in the revised estimate of the Rushikulya project under P. Maintenance and Repairs.

ORDER—dated 19th November 1890, No. 670 I., Public Works.

The repairs to the Division office at Dogam having already been carried out, the sanction of an estimate is unnecessary. The Examiner of Public Works Accounts is authorized to pass the expenditure incurred on the repairs, the amount being met from the balance of the lump sum provided under "P. Maintenance during construction" in the revised estimates of the Rushikulya project submitted to the Government of India with Proceedings of the Madras Government, No. 482 I., dated 4th September 1890.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, I Circle, with two enclosures.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 19th.

Recd. *Encl.*

G.O., 19th Nov. 1890, No. 670 I.

NOVEMBER.

Divisional Office at Dogam

The Examiner authorized to pass the expenditure incurred on repairs to the —.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers :—

From Lieutenant-Colonel R. R. E. DRAKE-BROCKMAN, R.E., Superintending Engineer, IV Circle, to the Chief Engineer for Irrigation (through the Examiner), dated Cochin, 25th October 1890, No. 104 E.I.

I have the honor to submit a completion report for cutting Keelcoppam branch channel, No. 1, and to request you will be good enough to obtain the necessary sanction of Government to the excess outlay (Rs. 213) over the sanctioned estimate (Rs. 3,372) with reference to para. 955 of the Public Works Code.

2. The excess expenditure was mainly due to more hard rock having been met with in the excavation than what was estimated for.

Office-note from the Officiating Examiner, Public Works Accounts, dated Madras, 6th November 1890, No. 6564.

Forwarded.

2. The completion report has been checked and found correct.

ORDER—dated 19th November 1890, No. 671 I., Public Works.

The Examiner of Public Works Accounts is authorized to admit the expenditure incurred in cutting Keelcoppam branch channel, No. 1, of the Barur tank project, the excess outlay of Rs. 213 being met from the balance of the amount reserved for unforeseen works of the project, which will then be reduced to Rs. 513.

2. This sanction has been registered as No. 90 I. of 1890-91.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, IV Circle, with one enclosure.
,, Examiner, Public Works Accounts.
,, Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 19th.

Recd. *Encl.*

G.O., 19th Nov. 1890, No. 671 I.

NOVEMBER.

Keelcoppam Branch Channel, No. 1

The Examiner authorized to admit the excess outlay incurred in cutting the —, Barur tank project.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following paper :—

From G. D. WYBROW, Esq., Superintending Engineer, I Circle, to the Chief Engineer for Irrigation, dated Dowlaishweram, 31st October 1890, No. 890 G.N.

I have the honor to request that you will be so good as to obtain the sanction of Government for an allotment of Rs. 2,000 in addition to the existing lump sum grant, Rs. 10,000,* for the Ganjam division, under "Repairs" "43. Minor Works and Navigation Works for which neither Capital nor Revenue Accounts are kept," as the Executive Engineer, Ganjam Division, states that this further amount (Rs. 2,000) is required to meet the extra expenditure, chiefly on Boari reservoir.

* Sanctioned in G.O., No. 14 I., dated 8th January 1890, Final Budget.

Order—dated 19th November 1890, No. 672 I., Public Works.

The sum of Rs. 2,000 required for the Ganjam division is appropriated from the balance of the reserve under "Irrigation and Navigation Works for which neither Capital nor Revenue Accounts are kept," "Repairs."

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, I Circle.
,, Examiner, Public Works Accounts.
,, Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 19th.

Recd. *Encl.*

G.O., 19th Nov. 1890, No. 672 I.

NOVEMBER.

Funds

Rupees 2,000 allotted for the Ganjam division from the reserve under Repairs.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

Proceedings of the Board of Revenue (Revenue Settlement, Land Records and Agriculture), dated 24th October 1890, No. 321, Press.

MR. CLOGSTOUN.

Resolution—dated 24th October 1890, No. 321, Press.

The Board resolves to forward to the Chief Engineer for Irrigation the comparative statement of irrigation and rainfall for 1889-90. The return from North Arcot was received only on the 18th current.

2. The total rainfall registered in the year in the Presidency, excluding Madras, Nílgiris and the two West Coast districts, amounted to 36·46 inches, a quantity 0·35 inches in excess of the average of the preceding five years and 4·67 inches in excess of that of the previous year. The details for each month and for each district are given in appendices I and II.

3. The south-west monsoon was on the whole favorable, but there was a serious failure of the north-east monsoon in parts of Nellore, Cuddapah, Chingleput, North and South Arcots, Tanjore, Trichinopoly, Madura and Tinnevelly which considerably reduced the outturn of irrigated crops and rendered large remissions necessary for waste and for withered crops. The Godávari began to rise in June and attained its maximum height of 16 feet 8 inches on the 19th August 1889. No damage to crops were caused by floods. The tanks as well as the channels received a good supply of water. The Kistna had good freshes and was 8·3 feet over the crest of the anicut on the 30th September 1889. In Ganjam and Anantapur several tanks breached in consequence of excessive rains.

4. The area actually irrigated from Government sources under first and second crop in the official years 1888-89 and 1889-90 is exhibited in the subjoined table :—

Items.	Anicut and other important works, classes I and II.		Other works, classes III and IV.		Total.		Difference.
	1888-89.	1889-90.	1888-89.	1889-90.	1888-89.	1889-90.	
	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.
Government land ..	1,899,073	1,936,086	2,373,767	2,437,576	4,272,840	4,373,662	+100,822
Inam land	454,828	473,042	427,675	449,807	882,503	922,849	+ 40,346
Zemindari land ..	211,711	218,116	49,901	59,570	261,612	277,686	+ 16,074
Total ..	2,565,612	2,627,244	2,851,343	2,946,953	5,416,955	5,574,197	+157,242
Difference ..	..	+ 61,632	..	+ 95,610	..	+ 157,242	..

N.B.—The difference in the figures for 1888-89 between this statement and that appended to Board's Proceedings, dated 2nd November 1889, No. 507, is due to the transfer of thirteen works from class III to class II ordered in G.O., dated 21st June 1890, Mis. No. 3860.

5. As compared with the previous year there was an increase in the irrigated area under all the systems included in class I works except the Kurnool-Cuddapah canal and the Cauvery anicut under which there were decreases amounting to 12,000 and 1,000 acres respectively. The increase occurred chiefly under the Godávari and Kistna anicut systems, each of which contributed about 40 per cent. of the gross increase under class I works. The Pennér and Sangam anicuts come next with an increase of about 9 per cent. each. The variations are due to the causes explained in Board's Proceedings, dated 15th October 1890, No. 308. There were decreases in the marginally-noted works under class II due to deficient rainfall in the north-east monsoon and slight increases under the other works of the same class. Under the Pelandorai anicut there was an increase of acres 781 or 22 per cent. over last year due to extension of distributary channels.

	ACS.
Chembrambakam tank	3,928
Madras Water-supply and Irrigation Extension project	991
Pálár anicut	415
Poiney anicut	337
Marudur anicut	183
Tirukoilúr anicut	64
Vallur anicut	53

6. Under "Other works," *i.e.*, classes III and IV, there was an increase in all the districts except Nellore, Chingleput, North Arcot and South Arcot, where there were decreases attributable to the failure of the north-east monsoon. The increase was large in Godávari, Vizagapatam, Anantapur, Cuddapah and Kurnool districts, amounting to 20, 17, 14, 13 and 9 per cent., respectively. Forty-nine per cent. of the gross decrease occurred in the Chingleput district. South Arcot follows with 20 per cent., and North Arcot and Nellore account for 16 per cent. each.

(True Extract.)

(Signed) P. RAJARATNA MUDALIAR,
Secretary.

ENCLOSURES.

I.

Months.	Rainfall.		
	Average of five years ending 1888-89.	1888-89.	1889-90.
	INCHES.	INCHES.	INCHES.
April	0·51	0·78	1·48
May	2·41	3·40	1·51
June	2·68	1·64	3·09
July	3·19	2·75	5·45
August	4·44	3·28	4·46
September	4·45	4·35	6·70
Total of South-west monsoon ...	17·68	16·20	22·69
October	7·60	5·46	7·87
November	6·53	7·09	2·53
December	3·64	2·55	2·52
January	0·12	0·13	0·24
February	0·09	...	0·15
March	0·45	0·36	0·46
Total of North-east monsoon ...	18·43	15·59	13·77
Total for the year ..	36·11	31·79	36·46

(Signed) P. RAJARATNA MUDALIAR,
Secretary.

II.

Districts.	Average of five years ending 1888-89.		1888-89.		1889-90.	
	South-west monsoon.	North-east monsoon.	South-west monsoon.	North-east monsoon.	South-west monsoon.	North-east monsoon.
	INCHES.	INCHES.	INCHES.	INCHES.	INCHES.	INCHES.
Ganjam	28·38	13·53	18·13	7·96	32·38	27·95
Vizagapatam	33·54	12·33	25·23	9·67	41·19	12·78
Godávari	26·55	11·30	21·69	9·55	32·44	14·14
Kistna	23·60	9·85	18·39	8·37	25·65	11·60
Nellore	11·23	26·29	11·32	17 89	13·33	15·95
Cuddapah	14·79	15·35	15·06	12·46	20·35	10·00
Anantapur	13·74	7·25	13·66	6·59	21·67	11·22
Bellary	14·06	6·35	15·16	4·83	22·92	7·31
Kurnool	18·15	7·61	15·14	5·58	26·01	9·60
Chingleput	18·96	36·40	21·52	33·21	17·53	21·37
North Arcot	17·61	23·52	20·12	18·32	23·07	16·46
South Arcot	19·24	33·04	20·92	27·23	20·73	12·82
Tanjore	15·32	37·44	15·39	31·66	19·90	17·38
Trichinopoly	14·50	18·92	14·28	14·40	19·27	14·29
Madura	10·82	20·88	9·08	21·87	17·62	11·56
Tinnevelly	6·83	24·13	7·09	30·16	10·38	12·95
Coimbatore	11·68	13·29	11·07	9·33	18·10	9·81
Salem	19·31	14·26	18·36	11·62	25·84	10·63
Average ..	17·68	18·43	16·20	15·59	22·69	13·77

(Signed) P. RAJARATNA MUDALIAR,
Secretary.

COMPARATIVE Statement of Irrigation and Rainfall for the

Works.	Items.	Area of the district in acres.	Cultivable area in acres.	Cultivated area in acres.	AREAS: Sown from April to November 1889, *i.e.*, first crop. Total acres.	In comparison with 1888-89. Increase.	In comparison with 1888-89. Decrease.
1	2	3	4	5	6	7	8
	Ganjam.						
	Government land ..	1,444,779	440,127	394,420	155,251	10,445	..
	Inam land ..	157,141	136,913	121,649	36,528	..	444
	Zemindari land ..	3,754,240	846,968	60,735	10,042	..	..
	Total ..	5,356,160	1,424,008	576,804	201,821	10,001	..
	Vizagapatam.						
	Government land ..	1,187,187	147,745	114,698	34,924	15,680	..
	Inam land ..	101,283	101,283	37,577	20,101	12,710	..
	Zemindari land ..	9,586,410	11,227	11,227	11,227	2,301	..
	Total ..	10,874,880	260,255	163,502	66,252	30,691	..
	Godávari.						
Godávari anicut.	Government land ..	..	..	..	297,644	7,587	..
	Inam land ..	..	..	..	172,768	3,887	..
	Zemindari land ..	..	..	..	131,038	4,793	..
	Total ..	..	..	..	601,450	16,267	..
All other works.	Government land ..	..	..	..	54,517	16,254	..
	Inam land ..	..	..	..	22,685	6,984	..
	Zemindari land ..	..	..	..	6,381	5,855	..
	Total ..	..	..	..	83,583	29,093	..
Total ..	Government land ..	2,448,344	1,088,741	733,838	352,161	23,841	..
	Inam land ..	546,926	471,047	399,896	195,453	10,871	..
	Zemindari land ..	2,037,576	787,226	493,264	137,419	10,648	..
	Total ..	5,032,846	2,347,014	1,626,998	685,033	45,360	..
	Kistna.						
Kistna anicut ..	Government land ..	..	..	..	260,414	26,538	..
	Inam land ..	..	..	..	88,499	10,669	..
	Zemindari land ..	..	..	..	73,033	..	4,074
	Total ..	..	..	..	421,946	33,133	..
All other works.	Government land ..	..	..	..	26,316	567	..
	Inam land ..	..	..	..	3,774	1,437	..
	Zemindari land ..	..	..	..	4,244	699	..
	Total ..	..	..	..	34,334	2,703	..
Total ..	Government land ..	3,508,092	2,360,086	1,470,740	286,730	27,105	..
	Inam land ..	682,628	645,772	461,900	92,273	12,106	..
	Zemindari land ..	1,183,360	336,903	247,881	77,277	..	3,375
	Total ..	5,374,080	3,342,761	2,180,521	456,280	35,836	..
	Nellore.						
Pennér anicut ..	Government land ..	..	..	..	41,073	6,774	..
	Inam land ..	..	..	..	10,842	1,225	..
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	51,915	7,999	..
Sangam anicut ..	Government land ..	..	..	..	42,195	1,111	..
	Inam land ..	..	..	..	9,170	153	..
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	51,365	1,264	..

years 1888-89 and 1889-90 in the Madras Presidency.

IRRIGATED.							RAINFALL.			
Sown from December 1889 to March 1890, *i.e.*, second crop.			Whole year, 1889-90.			Percentage of increase or decrease in 1889-90.	Months.	1888-89.	1889-90.	Percentage of increase or decrease in 1889-90.
Total acres.	In comparison with 1888-89.		Total acres.	In comparison with 1888-89.						
	Increase.	Decrease.		Increase.	Decrease.					
9	10	11	12	13	14	15	16	17	18	19
								INCHES.	INCHES.	
10,608	1,203	..	165,759	11,648	..	+ 7·56	....	..	..	..
1,214	..	1,289	37,742	..	1,733	— 4·39	South-west monsoon.	18·13	32·38	+ 78·60
..	..	475	10,042	..	475	— 4·52	North-east do.	7·96	27·95	+ 251·13
11,722	..	561	213,543	9,440	..	+ 4·63	Total ..	26·09	60·33	+ 131·24
2,198	..	1,296	37,122	14,384	..	+ 63·26	....	..	..	..
892	..	927	20,993	11,783	..	+ 127·94	South-west monsoon.	25·23	41·19	+ 63·26
..	..	..	11,227	2,301	..	+ 25·78	North-east do.	9·67	12·78	+ 32·16
3,090	..	2,223	69,342	28,468	..	+ 69·65	Total ..	34·90	53·97	+ 54·64
21,448	4,158	..	319,092	11,745	..	+ 3·82	....	..	..	..
15,025	3,690	..	187,793	7,577	..	+ 4·20	....	..	..	..
12,851	6,065	..	143,889	10,858	..	+ 8·16	....	..	..	..
49,324	13,913	..	650,774	30,180	..	+ 4·86	Total ..	..	..	..
5,802	2,357	..	60,319	15,611	..	+ 44·62	....	..	..	..
3,100	907	..	25,785	7,891	..	+ 44·10	....	..	..	..
867	837	..	7,248	6,692	..	+ 1205·40	....	..	..	..
9,769	4,101	..	93,352	33,194	..	+ 55·18	Total ..	..	..	..
27,250	6,515	..	379,411	30,356	..	+ 8·70	....	..	..	..
18,125	4,597	..	213,578	15,468	..	+ 7·81	South-west monsoon.	21·69	32·44	49·56
13,718	6,902	..	151,137	17,550	..	+ 13·14	North-east do.	9·55	14·14	48·06
59,093	18,014	..	744,126	63,374	..	+ 9·31	Total ..	31·24	46·68	49·10
1,447	..	2,808	261,861	23,730	..	+ 9·97	....	..	..	..
154	..	28	88,653	10,641	..	+ 13·64	....	..	..	..
32	20	..	73,065	..	4,054	— 5·26	....	..	..	..
1,633	..	2,816	423,579	30,317	..	+ 7·71	Total ..	..	..	..
1,582	85	..	27,898	652	..	+ 2·39	....	..	..	..
460	94	..	4,234	1,531	..	+ 56·64	....	..	..	..
1,375	344	..	5,619	1,043	..	+ 22·79	....	..	..	..
3,417	523	..	37,751	3,226	..	+ 9·58	Total ..	..	..	..
3,029	..	2,723	289,759	24,382	..	+ 9·20	....	..	..	..
614	66	..	92,887	12,172	..	+ 15·08	South-west monsoon.	18·39	25·65	+ 39·48
1,407	364	..	78,684	..	3,011	— 3·69	North-east do.	8·37	11·60	+ 38·59
5,050	..	2,293	461,330	33,543	..	+ 7·84	Total ..	26·76	37·25	+ 39·20
8,454	..	1,157	49,527	5,617	..	+ 12·79	....	..	..	..
3,728	..	58	14,570	1,167	..	+ 8·71	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
12,182	..	1,215	64,097	6,784	..	+ 11·84	Total ..	..	..	..
7,727	4,346	..	49,922	5,457	..	+ 12·27	....	..	..	..
1,267	980	..	10,437	1,133	..	+ 12·18	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
8,994	5,326	..	60,359	6,590	..	+ 12·26	Total ..	..	..	..

Comparative Statement of Irrigation and Rainfall for the

Works.	Items.	Area of the district in acres.	Cultivable area in acres.	Cultivated area in acres.	AREAS — Sown from April to November 1889, *i.e.*, first crop. — Total acres.	In comparison with 1888-89. — Increase.	In comparison with 1888-89. — Decrease.
1	2	3	4	5	6	7	8
	Nellore— cont.						
All other works.	Government land ..	..	..	..	72,860	..	12,087
	Inam land ..	..	..	..	16,329	..	544
	Zemindari land ..	..	..	..	738	717	..
	Total ..	..	..	..	89,927	..	11,914
Total ..	Government land ..	2,587,399	1,453,943	852,164	156,128	..	4,202
	Inam land ..	647,161	592,402	329,109	36,341	834	..
	Zemindari land ..	2,375,040	46	46	738	717	..
	Total ..	5,609,600	2,046,391	1,181,319	193,207	..	2,651
	Cuddapah.						
	Government land ..	4,795,374	1,759,929	1,252,337	86,242	13,305	..
	Inam land ..	791,535	693,290	521,369	49,167	8,554	..
	Zemindari land ..	..	..	..	..	..	..
	Total ..	5,586,909	2,453,219	1,773,706	135,409	21,859	..
	Anantapur.						
	Government land ..	2,758,433	2,047,673	1,025,788	54,912	9,220	..
	Inam land ..	616,927	606,668	413,627	15,477	334	..
	Zemindari land ..	..	..	..	..	..	..
	Total ..	3,375,360	2,654,341	1,439,415	70,389	9,554	..
	Bellary.						
	Government land ..	3,102,818	2,521,943	1,450,784	29,406	184	..
	Inam land ..	820,249	819,401	619,993	10,818	..	737
	Zemindari land ..	..	..	..	..	..	..
	Total ..	3,923,067	3,341,344	2,070,777	40,224	..	553
	Kurnool.						
Kurnool-Cuddapah canal.	Government land ..	..	..	..	12,020	..	6,587
	Inam land ..	..	..	..	5,775	..	3,844
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	17,795	..	10,431
Cumbum tank ..	Government land ..	..	..	..	3,388	..	10
	Inam land ..	..	..	..	1,817	..	8
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	5,205	..	18
All other works.	Government land ..	..	..	..	25,578	6,290	..
	Inam land ..	..	..	..	16,917	3,658	..
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	42,495	9,948	..
Total ..	Government land ..	3,955,087	1,583,696	1,132,761	40,986	..	307
	Inam land ..	1,017,073	1,006,662	762,776	24,509	..	194
	Zemindari land ..	..	..	..	..	..	..
	Total ..	4,972,160	2,590,358	1,895,537	65,495	..	501
	Chingleput.						
Chembrambakam tank.	Government land ..	..	..	..	5,432	..	2,573
	Inam land ..	..	..	..	1,739	..	317
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	7,171	..	2,890
Madras Water-supply and Irrigation Extension project.	Government land ..	..	..	..	4,413	..	125
	Inam land ..	..	..	..	764	..	77
	Zemindari land ..	..	..	..	87	..	11
	Total ..	..	..	..	5,264	..	213

years 1888-89 and 1889-90 in the Madras Presidency—*cont.*

IRRIGATED.							RAINFALL.			
Sown from December 1889 to March 1890, *i.e.*, second crop.			Whole year, 1889-90.			Percentage of increase or decrease in 1889-90.	Months.	1888-89.	1889-90.	Percentage of increase or decrease in 1889-90.
Total acres.	In comparison with 1888-89.		Total acres.	In comparison with 1888-89.						
	Increase.	Decrease.		Increase.	Decrease.					
9	10	11	12	13	14	15	16	17	18	19
								INCHES.	INCHES.	
25,330	1,334	..	98,190	..	10,753	— 9·87	....	..	..	..
5,821	597	..	21,650	53	..	+ ·25	....	..	..	..
46	..	570	784	147	..	+ 23·08	....	..	..	
30,697	1,361	..	120,624	..	10,553	— 8·04	Total ..	..	..	..
41,511	4,523	..	197,639	321	..	+ [illegible]·16	....	..	..	..
10,316	1,519	..	46,657	2,353	..	+ 5·31	South-west monsoon.	11·32	13·33	+ 17·75
46	..	570	784	147	..	+ 23·08	North-east do.	17·89	15·95	— 10·84
51,873	5,472	..	245,080	2,821	..	+ 1·16	Total ..	29·21	29·28	+ ·24
67,428	3,823	..	153,670	17,128	..	+ 12·54	....	..	..	..
37,886	..	3,437	87,053	5,117	..	+ 6·25	South-west monsoon.	15·06	20·35	+ 35·13
..	..	..	..	..	..	..	North-east do.	12·46	10·00	— 19·74
105,314	386	..	240,723	22,245	..	+ 10·18	Total ..	27·52	30·35	+ 10·28
66,427	8,607	..	121,339	17,827	..	+ 17·20	....	..	..	..
18,304	4,554	..	33,781	4,888	..	+ 16·92	South-west monsoon.	13·66	21·67	+ 58·64
..	..	..	..	..	..	..	North-east do.	6·59	11·22	+ 70·26
84,731	13,161	..	155,120	22,715	..	+ 17·16	Total ..	20·25	32·89	+ 62·42
7,077	1,798	..	36,483	1,982	..	+ 5·74	....	..	..	..
2,009	555	..	12,827	..	182	— 1·40	South-west monsoon.	15·16	22·92	+ 51·19
..	..	..	..	..	..	..	North-east do.	4·83	7·31	+ 51·35
9,086	2,353	..	49,310	1,800	..	+ 3·79	Total ..	19·99	30·23	+ 51·23
2,485	..	1,705	14,505	..	8,292	— 36·37	....	..	..	..
1,551	81	..	7,326	..	3,763	— 33·93	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
4,036	..	1,624	21,831	..	12,055	— 35·58	Total ..	..	..	..
3,076	585	..	6,464	575	..	+ 9·76	....	..	..	..
1,160	161	..	2,977	153	..	+ 5·42	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
4,236	746	..	9,441	728	..	+ 8·36	Total ..	..	..	..
9,542	5,161	..	35,120	11,451	..	+ 48·38	....	..	..	..
5,324	239	..	22,241	3,897	..	+ 21·24	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
14,866	5,400	..	57,361	15,348	..	+ 36·53	Total ..	..	..	..
15,103	4,041	..	56,089	3,734	..	+ 7·15	....	..	..	..
8,035	481	..	32,544	287	..	+ ·89	South-west monsoon.	15·14	26·01	+ 71·80
..	..	..	..	..	..	..	North-east do.	5·58	9·60	+ 72·04
23,138	4,522	..	88,633	4,021	..	+ 4·75	Total ..	20·72	35·61	+ 71·86
3,387	..	959	8,819	..	3,532	— 28·60	....	..	..	..
446	..	79	2,185	..	396	— 15·34	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
3,833	..	1,038	11,004	..	3,928	— 26·31	Total ..	..	..	..
3,929	..	840	8,342	..	965	— 10·37	....	..	..	..
363	55	..	1,127	..	22	— 1·91	....	..	..	..
73	7	..	160	..	4	— 2·44	....	..	..	..
4,365	..	778	9,629	..	991	— 9·33	Total ..	..	..	..

Comparative Statement of Irrigation and Rainfall for the

Works.	Items.	Area of the district in acres.	Cultivable area in acres.	Cultivated area in acres.	AREAS — Sown from April to November 1889, *i.e.*, first crop. — Total acres.	In comparison with 1888-89. — Increase.	Decrease.
1	2	3	4	5	6	7	8
	Chingleput—cont.						
Vallur anicut ..	Government land ..	..	..	..	1,520	91	..
	Inam land ..	..	..	..	1,881	..	58
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	3,401	33	..
All other works.	Government land ..	..	..	..	264,748	3,059	..
	Inam land ..	..	..	..	38,827	..	7,744
	Zemindari land ..	..	..	..	1,593	..	448
	Total ..	..	..	..	305,168	..	5,133
Total ..	Government land ..	1,313,024	734,528	600,120	276,113	452	..
	Inam land ..	264,937	258,187	126,520	43,211	..	8,196
	Zemindari land ..	239,876	229,437	58,939	1,680	..	459
	Total ..	1,817,837	1,222,152	785,579	321,004	..	8,203
	North Arcot.						
Pálár anicut ..	Government land ..	..	..	..	58,903	325	..
	Inam land ..	..	..	..	6,697	..	577
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	65,600	..	252
Cheyár anicut ..	Government land ..	..	..	..	18,046	147	..
	Inam land ..	..	..	..	1,278	..	..
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	19,324	147	..
Poiney anicut ..	Government land ..	..	..	..	18,734	34	..
	Inam land ..	..	..	..	1,363	..	56
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	20,097	..	22
All other works.	Government land ..	..	..	..	196,575	1,179	..
	Inam land ..	..	..	..	29,138	1,616	..
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	225,713	2,795	..
Total ..	Government land ..	2,411,716	1,161,676	894,607	292,258	1,685	..
	Inam land ..	206,524	156,610	129,907	38,476	983	..
	Zemindari land ..	2,179,840	..	..	..	..	..
	Total ..	4,798,080	1,318,286	1,024,514	330,734	2,668	..
	South Arcot.						
Pelandorai anicut	Government land ..	..	..	..	3,173	719	..
	Inam land ..	..	..	..	441	34	..
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	3,614	753	..
Lower Coleroon anicut.	Government land ..	..	..	..	97,988	4,991	..
	Inam land ..	..	..	..	8,951	551	..
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	106,939	5,542	..
Shatiatope anicut.	Government land ..	..	..	..	22,487	..	..
	Inam land ..	..	..	..	2,071	..	..
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	24,558	..	..

years 1888-89 and 1889-90 in the Madras Presidency—*cont.*

IRRIGATED.							RAINFALL.			
Sown from December 1889 to March 1890, *i.e.*, second crop.			Whole year, 1889-90.			Percentage of increase or decrease in 1889-90.	Months.	1888-89.	1889-90.	Percentage of increase or decrease in 1889-90.
Total acres.	In comparison with 1888-89. Increase.	In comparison with 1888-89. Decrease.	Total acres.	In comparison with 1888-89. Increase.	In comparison with 1888-89. Decrease.					
9	10	11	12	13	14	15	16	17	18	19
								INCHES.	INCHES.	
759	..	45	2,279	46	..	+ 2·06	....	..	..	..
941	..	41	2,822	..	99	− 3·39	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
1,700	..	86	5,101	..	53	− 1·03	Total ..	..	..	..
64,539	..	25,168	329,287	..	22,109	− 6·29	....	..	..	..
12,609	..	2,741	51,436	..	10,485	− 16·93	....	..	..	..
276	..	214	1,869	..	662	− 26·16	....	..	..	..
77,424	..	28,123	382,592	..	33,256	− 8·00	Total ..	..	..	..
72,614	..	27,012	348,727	..	26,560	− 7·08	....	..	..	..
14,359	..	2,806	57,570	..	11,002	− 16·04	South-west monsoon.	21·52	17·53	− 18·54
349	..	207	2,029	..	666	− 24·71	North-east do.	33·21	21·37	− 35·65
87,322	..	30,025	408,326	..	38,228	− 8·56	Total ..	54·73	38·90	− 28·92
23,245	317	..	82,148	642	..	+ ·80	....	..	..	..
3,483	..	480	10,180	..	1,057	− 9·4	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
26,728	..	163	92,328	..	415	− ·45	Total ..	..	..	..
13,194	..	133	31,240	14	..	+ ·04	....	..	..	..
443	..	..	1,721	..	..	..	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
13,637	..	133	32,961	14	..	+ ·04	Total ..	..	..	..
5,224	..	303	23,958	..	269	− 1·11	....	..	..	..
255	..	12	1,618	..	68	− 4·03	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
5,479	..	315	25,576	..	337	− 1·30	Total ..	..	..	..
81,758	..	11,341	278,333	..	10,162	− 3·52	....	..	..	..
14,010	..	2,098	43,148	..	482	− 1·10	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
95,768	..	13,439	321,481	..	10,644	− 3·20	Total ..	..	..	..
123,421	..	11,460	415,679	..	9,775	− 2·30	....	..	..	..
18,191	..	2,690	56,667	..	1,607	− 2·76	South-west monsoon.	20·12	23·07	+ 14·66
..	..	..	..	..	..	..	North-east do.	18·32	16·46	− 10·15
141,612	..	14,050	472,346	..	11,382	− 2·35	Total ..	38·44	39·53	+ 2·84
543	20	..	3,716	739	..	+ 24·82	....	..	..	..
98	8	..	539	42	..	+ 8·45	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
641	28	..	4,255	781	..	+ 22·48	Total ..	..	..	..
6,881	..	2,306	104,869	2,685	..	+ 2·63	....	..	..	..
1,051	..	4	10,002	547	..	+ 5·79	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
7,932	..	2,310	114,871	3,232	..	+ 2·89	Total ..	..	..	..
4,249	..	..	26,736	..	..	..	....	..	..	..
432	..	..	2,503	..	..	..	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
4,681	..	..	29,239	* ..	* ..	..	Total ..	..	..	..

* Information not available.

Comparative Statement of Irrigation and Rainfall for the

Works.	Items.	Area of the district in acres.	Cultivable area in acres.	Cultivated area in acres.	AREAS — Sown from April to November 1889, *i.e.*, first crop. — Total acres.	In comparison with 1888-89. — Increase.	In comparison with 1888-89. — Decrease.
1	2	3	4	5	6	7	8
	South Arcot—cont.						
Vriddháchalam anicut.	Government land ..	..	..	..	3,153	..	..
	Inam land ..	..	..	..	242	..	..
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	3,395	..	..
Mehmatur anicut.	Government land ..	..	..	..	2,262	..	..
	Inam land ..	..	..	..	101	..	..
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	2,363	..	..
Tirukoilúr anicut.	Government land ..	..	..	..	16,548	..	1,132
	Inam land ..	..	..	..	1,274	..	252
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	17,822	..	1,384
All other works ..	Government land ..	..	..	..	156,616	18,896	..
	Inam land ..	..	..	..	9,692	1,043	..
	Zemindari land ..	..	..	..	95	..	56
	Total ..	..	..	..	166,403	19,883	..
Total ..	Government land ..	3,110,357	2,146,738	1,342,491	302,227	23,474	..
	Inam land ..	156,843	142,709	75,223	22,772	1,376	..
	Zemindari land ..	22,400	14,080	6,635	95	..	56
	Total ..	3,289,600	2,303,527	1,424,349	325,094	24,794	..
	Tanjore.						
Upper anicut ..	Government land ..	..	..	..	743,302	3,002	..
	Inam land ..	..	..	..	106,147	3,541	..
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	849,449	6,543	..
All other works..	Government land ..	..	..	..	40,025	65	..
	Inam land ..	..	..	..	4,446	..	311
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	44,471	..	246
Total ..	Government land ..	1,590,878	1,166,228	978,168	783,327	3,067	..
	Inam land ..	611,536	448,828	242,478	110,593	3,230	..
	Zemindari land ..	191,633	..	..	..	..	..
	Total ..	2,394,047	1,615,056	1,220,646	893,920	6,297	..
	Trichinopoly.						
	Government land ..	2,422,574	1,276,290	839,575	108,840	8,492	..
	Inam land ..	214,226	177,431	118,953	8,426	4,465	..
	Zemindari land ..	391,680	321,071	..	14	..	8
	Total ..	3,028,480	1,774,792	958,528	117,280	12,949	..
	Madura.						
	Government land ..	2,041,432	1,218,768	975,634	166,509	47,366	..
	Inam land ..	219,888	206,752	85,369	13,977	3,951	..
	Zemindari land ..	3,370,240	1,342,720	..	103	24	..
	Total ..	5,631,560	2,768,240	1,061,003	180,589	51,341	..
	Tinnevelly.						
Srivaikuntham anicut.	Government land ..	..	..	..	11,604	587	..
	Inam land ..	..	..	..	436	..	146
	Zemindari land ..	..	..	..	162	..	446
	Total ..	..	..	..	12,202	..	5

years 1888-89 and 1889-90 in the Madras Presidency—*cont.*

IRRIGATED.							RAINFALL.			
Sown from December 1889 to March 1890, *i.e.*, second crop.			Whole year, 1889-90.			Percentage of increase or decrease in 1889-90.	Months.	1888-89.	1889-90.	Percentage of increase or decrease in 1889-90.
Total acres.	In comparison with 1888-89.		Total acres.	In comparison with 1888-89.						
	Increase.	Decrease.		Increase.	Decrease.					
9	10	11	12	13	14	15	16	17	18	19
								INCHES.	INCHES.	
1,239	..	..	4,392	..	..	..	....	..	..	..
121	..	..	363	..	..	..	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
1,360	..	..	4,755	*..	*..	..	Total ..	..	..	..
667	..	..	2,929	..	..	..	....	..	..	..
30	..	..	131	..	..	..	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
697	..	..	3,060	*..	*..	..	Total ..	..	..	..
8,153	780	..	24,701	..	352	— 1·41	....	..	..	..
770	..	37	2,044	..	289	— 12·39	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
8,923	743	..	26,745	..	641	— 2·34	Total ..	..	..	..
90,233	..	28,440	246,849	..	9,544	— 3·72	....	..	..	..
5,081	..	4,776	14,773	..	3,733	— 20·17	....	..	..	..
45	..	2	140	..	58	— 29·29	....	..	..	..
95,359	..	33,218	261,762	..	13,335	— 4·85	Total ..	..	..	..
111,965	..	29,946	414,192	..	6,472	— 1·54	....	..	..	..
7,583	..	4,809	30,355	..	3,433	— 10·16	South-west monsoon.	20·92	20·73	— ·91
45	..	2	140	..	58	— 29·29	North-east do. ..	27·23	12·82	— 52·92
119,593	..	34,757	444,687	..	9,963	— 2·19	Total ..	48·15	33·55	— 30·32
68,398	..	6,388	811,700	..	3,386	— ·42	....	..	..	..
13,343	..	1,157	119,490	2,384	..	+ 2·04	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
81,741	..	7,545	931,190	..	1,002	— ·11	Total ..	..	..	..
5,828	1,871	..	45,853	1,936	..	+ 4·41	....	..	..	..
220	..	258	4,666	..	569	— 10·87	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
6,048	1,613	..	50,519	1,367	..	+ 2·78	Total ..	..	..	..
74,226	..	4,517	857,553	..	1,450	— ·17	....	..	..	..
13,563	..	1,415	124,156	1,815	..	+ 1·48	South-west monsoon.	15·39	19·90	+ 29·30
..	..	..	..	..	..	..	North-east do. ..	31·66	17·38	— 45·10
87,789	..	5,932	981,709	365	..	+ ·04	Total ..	47·05	37·28	— 20·77
45,135	..	6,394	153,975	2,098	..	+ 1·38	....	..	..	..
2,782	..	3,504	11,208	961	..	+ 9·38	South-west monsoon.	14·28	19·27	+ 34·94
26	21	..	40	13	..	+ 48·15	North-east do. ..	14·40	14·29	— ·76
47,943	..	9,877	165,223	3,072	..	+ 1·89	Total ..	28·68	33·56	+ 17·02
32,871	..	41,868	199,380	5,498	..	+ 2·84	....	..	..	..
3,974	..	3,897	17,951	54	..	+ ·30	South-west monsoon.	9·08	17·62	+ 94 05
..	..	..	103	24	..	+ 30·38	North-east do. ..	21·87	11·56	— 47·14
36,845	..	45,765	217,434	5,576	..	+ 2·63	Total ..	30·95	29·18	— 5·72
19,179	..	148	30,783	439	..	+ 1·45	....	..	..	..
1,596	457	..	2,032	311	..	+ 18·07	....	..	..	..
840	51	..	1,002	..	395	— 28·21	....	..	..	..
21,615	360	..	33,817	355	..	+ 1·06	Total ..	..	..	..

* Information not available.

Comparative Statement of Irrigation and Rainfall for the

Works.	Items.	Area of the district in acres.	Cultivable area in acres.	Cultivated area in acres.	AREAS — Sown from April to November 1889, *i.e.*, first crop. — Total acres.	In comparison with 1888-89. — Increase.	Decrease.
1	2	3	4	5	6	7	8
	Tinnevelly—cont.						
Marudur anicut.	Government land ..	..	..	..	12,005	..	868
	Inam land ..	..	..	..	395	..	9
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	12,400	..	877
All other works.	Government land ..	..	..	..	78,181	12,946	..
	Inam land ..	..	..	..	7,321	1,241	..
	Zemindari land ..	..	..	..	13,220	965	..
	Total ..	..	..	..	98,722	15,152	..
Total ..	Government land ..	2,251,937	1,527,661	1,233,580	101,790	12,665	..
	Inam land ..	269,878	237,764	187,760	8,152	1,086	..
	Zemindari land ..	928,950	748,326	630,299	13,382	519	..
	Total ..	3,450,765	2,513,751	2,051,639	123,324	14,270	..
	Coimbatore.						
Kaduveri anicut.	Government land ..	..	..	..	18,405	890	..
	Inam land ..	..	..	..	895	79	..
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	19,300	969	..
Kalingarayan anicut.	Government land ..	..	..	..	9,554	..	55
	Inam land ..	..	..	..	1,530	76	..
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	11,084	21	..
All other works.	Government land ..	..	..	..	61,986	3,646	..
	Inam land ..	..	..	..	7,493	1,406	..
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	69,479	5,052	..
Total ..	Government land ..	4,590,554	2,799,813	2,216,362	89,945	4,481	..
	Inam land ..	236,487	322,862	261,223	9,918	1,561	..
	Zemindari land ..	106,880	86,438	69,042	..	..	..
	Total ..	5,033,921	3,209,113	2,546,627	99,863	6,042	..
	Salem.						
Barur Tank project.	Government land ..	..	..	..	928	515	..
	Inam land ..	..	..	..	105	71	..
	Zemindari land ..	..	..	..	..	..	..
	Total ..	..	..	..	1,033	586	..
All other works	Government land ..	..	..	..	101,385	15,124	..
	Inam land ..	..	..	..	7,594	900	..
	Zemindari land ..	..	..	..	236	..	38
	Total ..	..	..	..	109,215	15,986	..
Total ..	Government land ..	3,411,031	1,810,280	1,285,540	102,313	15,639	..
	Inam land ..	258,554	155,729	59,379	7,699	971	..
	Zemindari land ..	1,111,628	..	..	236	..	38
	Total ..	4,781,213	1,966,009	1,344,919	110,248	16,572	..
Total anicut ..	Government land ..	..	..	..	1,705,191	41,961	..
	Inam land ..	..	..	..	425,181	14,942	..
	Zemindari land ..	..	..	..	204,320	262	..
	Total ..	..	..	..	2,334,692	57,165	..

years 1888-89 and 1889-90 in the Madras Presidency—*cont.*

IRRIGATED.							RAINFALL.			
Sown from December 1889 to March 1890, *i.e.*, second crop.			Whole year, 1889-90.			Percentage of increase or decrease in 1889-90.	Months.	1888-89.	1889-90.	Percentage of increase or decrease in 1889-90.
Total acres.	In comparison with 1888-89.		Total acres.	In comparison with 1888-89.						
	Increase.	Decrease.		Increase.	Decrease.					
9	10	11	12	13	14	15	16	17	18	19
								INCHES.	INCHES.	
17,655	1,087	..	29,660	219	..	+ ·75	....	..	..	..
272	..	393	667	..	402	— 37·61	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
17,927	694	..	30,327	..	183	— ·60	Total ..	..	..	..
160,879	..	12,874	239,060	72	..	+ ·03	....	..	..	..
12,498	..	1,207	19,819	34	..	+ ·17	....	..	..	..
8,949	..	376	22,169	589	..	+ 2·73	....	..	..	..
182,326	..	14,457	281,048	695	..	+ ·25	Total ..	..	..	..
197,713	..	11,935	299,503	730	..	+ ·24	....	..	..	..
14,366	..	1,143	22,518	..	57	— ·25	South-west monsoon.	7·09	10·38	+ 46·40
9,789	..	325	23,171	194	..	+ ·84	North-east do.	30·16	12·95	— 57·06
221,868	..	13,403	345,192	867	..	+ ·25	Total ..	37·25	23·33	— 37·37
446	..	187	18,851	703	..	+ 3·86	....	..	..	..
22	4	..	917	83	..	+ 9·95	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
468	..	183	19,768	786	..	+ 4·14	Total ..	..	..	..
8,319	85	..	17,873	30	..	+ 15	....	..	..	..
1,223	58	..	2,753	134	..	+ 5·12	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
9,542	143	..	20,626	164	..	+ ·80	Total ..	..	..	..
21,617	1,364	..	83,603	5,010	..	+ 6·39	....	..	..	..
3,128	879	..	10,621	2,285	..	+ 27·41	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
24,745	2,243	..	94,224	7,295	..	+ 8·39	Total ..	..	..	..
30,382	1,262	..	120,327	5,743	..	+ 5·01	....	..	..	..
4,373	941	..	14,291	2,502	..	+ 21·22	South-west monsoon.	11·07	18·10	+ 63·50
..	..	..	..	..	..	..	North-east do.	9·33	9·81	+ 5·14
34,755	2,203	..	134,618	8,245	..	+ 6·52	Total ..	20·40	27·91	+ 36·81
791	653	..	1,719	1,168	..	+ 211·98	....	..	..	..
87	67	..	192	138	..	+ 255·55	....	..	..	..
..	..	..	..	..	..	..	....	..	..	..
878	720	..	1,911	1,306	..	+ 215·87	Total ..	..	..	..
23,951	..	7,044	125,336	8,080	..	+ 6·89	....	..	..	..
2,285	..	78	9,879	822	..	+ 9·08	....	..	..	..
93	93	..	329	55	..	+ 20·07	....	..	..	..
26,329	..	7,029	135,544	8,957	..	+ 7·08	Total ..	..	..	..
24,742	..	6,391	127,055	9,248	..	+ 7·85	....	..	..	..
2,372	..	11	10,071	960	..	+ 10·54	South-west monsoon.	18·36	25·84	+ 40·74
93	93	..	329	55	..	+ 20·07	North-east do.	11·62	10·63	— 8·52
27,207	..	6,309	137,455	10,263	..	+ 8·07	Total ..	29 98	36·47	+ 21·65
230,895	..	4,948	1,936,086	37,013	..	+ 1·95		..	..	..
47,861	3,272	..	473,042	18,214	..	+ 4·00		..	..	..
13,796	6,143	..	218,116	6,405	..	+ 3·03		..	..	..
292,552	4,467	..	2,627,244	61,632	..	+ 2·40	Total ..	..	..	..

Comparative Statement of Irrigation and Rainfall for the

Works.	Items.	Area of the district in acres.	Cultivable area in acres.	Cultivated area in acres.	AREAS — Sown from April to November 1889, *i.e.*, first crop. — Total acres.	In comparison with 1888-89. — Increase.	In comparison with 1888-89. — Decrease.
1	2	3	4	5	6	7	8
Total of all other works.	Government land ..	..	..	..	1,714,871	170,631	..
	Inam land ..	..	..	..	318,710	38,519	..
	Zemindari land ..	..	..	..	47,893	10,011	..
	Total ..	..	..	..	2,081,474	219,161	..
Grand total including anicut and all other works.	Government land ..	48,931,016	27,245,865	18,793,607	3,420,062	212,592	..
	Inam land ..	7,919,796	7,180,310	4,954,708	743,891	53,461	..
	Zemindari land ..	27,479,753	4,724,442	1,578,068	252,213	10,273	..
	Total ..	84,330,565	39,150,617	25,326,383	4,416,166	276,326	..

years 1888-89 and 1889-90 in the Madras Presidency—*cont.*

IRRIGATED.							RAINFALL.			
Sown from December 1889 to March 1890, *i.e.*, second crop.			Whole year, 1889-90.			Percentage of increase or decrease in 1889-90.	Months.	1888-89.	1889-90.	Percentage of increase or decrease in 1889-90.
Total acres.	In comparison with 1888-89.		Total acres.	In comparison with 1888-89.						
	Increase.	Decrease.		Increase.	Decrease.					
9	10	11	12	13	14	15	16	17	18	19
								INCHES.	INCHES.	
722,705	..	106,822	2,437,576	63,809	..	+ 2·69	....	..	..	..
131,097	..	16,387	449,807	22,132	..	+ 5·18	....	..	..	..
11,677	..	342	59,570	9,669	..	+ 19·37	....	..	..	..
865,479	..	123,551	2,946,953	95,610	..	+ 3·35	Total ..	..	..	..
953,600	..	111,770	4,373,662	100,822	..	+ 2·36	....	..	..	..
178,958	..	13,115	922,849	40,346	..	+ 4·57	South-west monsoon.	16·20	22·69	+ 40·06
25,473	5,801	..	277,686	16,074	..	+ 6·14	North-east do.	15·59	13·77	− 11·67
1,158,031	..	119,084	5,574,197	157,242	..	+ 2·90	Total ..	31·79	36·46	+ 14·69

(Signed) P. RAJARATNA MUDALIAR,
Secretary.

No. 170 I.

Submitted to Government.

(Signed) G. T. WALCH,
Chief Engineer for Irrigation.

CHEPÂK,
10th November 1890.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

ORDER—dated 19th November 1890, No. 673 I., Public Works.

The statement of irrigation and rainfall for 1889-90, submitted with the foregoing endorsement of the Chief Engineer for Irrigation, will be forwarded to the Government of India.

(Here enter No. 674 I., dated 19th November 1890.)

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, all Superintending Engineers.
,, the Revenue Department.

ENDORSEMENT—dated 19th November 1890, No. 674 I., Public Works.

Forwarded.

(By Order.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

IRRIGATION.
ACCOUNT.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 19th.

Recd. *Encl.*

G.O., 19th Nov. 1890, Nos. 673 I., 674 I.

NOVEMBER.

Forwarding a statement of irrigation and rainfall for 1889-90.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following paper :—

No. 173 I.

Note by the Chief Engineer for Irrigation.

No less than five different Executive Engineers held charge of the division and eight different Assistant Engineers or upper subordinates of the sub-division during the three years that this work was under construction; under these circumstances it is impossible to fix responsibility for the mismanagement which resulted in the large excess; but it is noticed that of the three years Mr. Pears was in charge of the division for about nine months (September 1886 till July 1887) and Mr. Todd for two years (September 1887 till September 1889) and Mr. Pereira was in charge of the sub-division for 19 months, January 1887 till October 1888.

2. The frequency of considerable excesses on works in the Kistna district has before been commented on and the special attention of the Superintending Engineer drawn to the matter. Such causes of excess as that noted in para. 7 of his letter it is specially his province to check and put a stop to.

3. Remarks about this work will be found in para. 20, clause (*h*) of inspection notes printed with Proceedings of the Madras Government, No. 193 I., dated 24th March 1890.

Chepâk,
14th November 1890.

((Signed) G. T. WALCH,
Chief Engineer for Irrigation.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

Order—dated 19th November 1890, No. 675 I., Public Works.

The Examiner of Public Works Accounts is authorised to pass the excess expenditure of Rs. 1,764 incurred in constructing a bridge at Pondrapad over the Commamur canal in the 21st mile, the amount being met from the balance available for unforeseen works of the Kistna delta system, which will then be reduced to Rs. 1,84,556.

2. The special attention of the Superintending Engineer, II Circle, is drawn to the remarks in the note of the Chief Engineer for Irrigation.

3. This sanction has been registered as No. 91 I. of 1890-91.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, II Circle, with three enclosures.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 19th.

Recd. *Encl.*

G.O., 19th Nov. 1890, No. 675 I.

NOVEMBER.

Bridge at Pondrapad over the Commamur Canal

The Examiner authorised to pass the excess expenditure incurred in constructing a — and the special attention of the Superintending Engineer, II Circle, drawn to the remarks of the Chief Engineer for Irrigation regarding frequency of considerable excesses on works in the Kistna district.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From Lieut.-Colonel A. C. SMITH, R.E., Superintending Engineer, VI Circle, to the Chief Engineer for Irrigation, dated Trichinopoly, 31st October 1890, No. 716 T.N.

I have the honor to request that early sanction may be obtained to the following modification of allotments in the Tinnevelly division :—

Item No.	——	Existing grant.	Modification of allotment applied for.		Modification of allotment proposed.	
			Reduction.	Increase.	Reduction.	Increase.
		RS.	RS.	RS.	RS.	RS.
	42. MAJOR WORKS (WORKING EXPENSES).					
	EXTENSIONS AND IMPROVEMENTS.					
	Srivaikuntham Anicut System.					
1	Korampallem tank. Cutting channels in the —to give flood waters free access to the Uppar Odai surplus sluices, estimate Rs. 10,700 sanctioned in G.O., No. 160 I., of 10th March 1890	3,657	..	2,000	..	2,000
2	Maintenance and repairs lump sum ..	8,687	..	1,075	..	1,075
	Total ..	..	..	3,075	..	3,075
	43. MINOR WORKS AND NAVIGATION.					
	WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT.					
	REVENUE ACCOUNT.					
	Marudur Anicut System.					
3	Minor extensions and improvements ..	3,000	..	2,000	..	2,000
4	Maintenance and repairs	7,000	..	2,000	..	2,000
	Total ..	..	..	4,000	..	4,000
	WORKS FOR WHICH NEITHER CAPITAL NOR REVENUE ACCOUNTS ARE KEPT.					
5	Minor original works	22,000	4,000	..	4,000	..
6	Repairs	43,000	12,000	..	12,000	..
	Total ..	..	16,000	..	16,000	..
	Tank Restoration Works.					
7	Minor original works	5,000	..	5,000	..	5,000
8	Repairs	6,422	..	2,000	..	2,000
	Total ..	..	..	7,000	..	7,000
	Minor Irrigation Works.					
9	Sattur Nemmeni tank. Improvements to—, estimate Rs. 11,580 sanctioned in G.O., No. 1 I., dated 6th January 1890 ..	5,000	..	4,000	..	4,000

2. *Item* 1.—The budget grant having almost been worked out, and the work being in rapid progress, an additional allotment is found necessary.

Item 2.—The Executive Engineer having exceeded his grant by Rs. 12 at the end of August 1890, he was ordered in this office No. 547 T.N. of 12th September 1890 not to incur any further outlay until an additional grant is sanctioned. He, however, now reports that liabilities, to the extent of Rs. 3,075, have been incurred, and asks permission to pay them in anticipation of sanction to the additional grants applied for. In the concluding paragraph of his letter No. 1822, dated 16th September 1890, the Executive Engineer asked for an additional grant of only Rs. 2,000; this letter was forwarded to the Chief Engineer for Irrigation with endorsement No. 578 T.N. of 20th idem, and the amount was included in the application submitted in No. 1289 T.J. of 29th September 1890. A further grant of Rs. 1,075 is also necessary to meet the liabilities. The Executive Engineer will, however, be called on for an explanation as to the circumstances under which the liabilities were incurred in excess of the existing grant, and his explanation will be submitted in due course. In the meantime permission is requested to settle the dues in anticipation of sanction to the additional grants applied for.

Items 3 *and* 4.—Existing grants are insufficient. The additional funds required may be transferred from the surrender made in item 5.

Item 5.—There are no sufficient estimates under this head; a portion of the grant is surrendered to meet the demands in items 3 and 4.

Item 6.—Sufficient estimates have not as yet been ready under this head; it is therefore proposed to give up a portion of the grant to meet the demands in items 7 and 8.

Items 7 *and* 8.—It is proposed to utilize the additional grants during the current official year—*vide* this office No. 700 T.N., dated 22nd October 1890; and permission is requested to make arrangements for starting works in anticipation of sanction to the additional grants now applied for.

Item 9.—Existing grant is almost worked out; hence the demand for an additional allotment.

ORDER—dated 19th November 1890, No. 676 I., Public Works.

There are no funds available to meet the demand for item 1. A sum of Rs. 1,690 has been included for item 2 in the application for additional grant under 42. Major Works (Working Expenses) submitted to the Government of India with Proceedings of the Madras Government, No. 624 I, dated 4th November 1890; should this application be complied with, such portion of the amount provided for item 2 as may not be required, may be transferred to meet in part the demand for item 1.

2. The following transfers of funds are sanctioned under Provincial, 43. Minor Works and Navigation:—

Tinnevelly Division.

From Irrigation and Navigation. Works for which neither Capital nor Revenue Accounts are kept. "Ordinary" Works.	RS.	*To* Irrigation and Navigation. Works for which Capital and Revenue Accounts are kept. Revenue Account. Marudur Anicut.	RS.
Minor original works	3,952	Extensions and improvements ...	2,000
Establishment	909	Maintenance and repairs	2,000
Tools and plant	59	Establishment	920
Total ...	4,920	Total ...	4,920

3. Rupees 48, the balance of the surrender from item 5, and Rs. 12,000, the surrender from item 6, will be credited to reserve under Minor Original Works and Repairs respectively.

4. The amounts required for items 7 and 8 have in G.O., No. 636 I., dated 6th November 1890, already been appropriated from the reserve.

5. The Board of Revenue will be requested to appropriate Rs. 4,000 required for item 9 together with Rs. 980 for Establishment and Tools and Plant charges from the grant for "Minor" Irrigation works.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, VI Circle.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 19th.

Recd. *Encl.*

G.O., 19th Nov. 1890, No. 676 I.

NOVEMBER.

Funds

Orders on letter from the Superintending Engineer, VI Circle, requesting sanction for certain modification of allotments in the Tinnevelly division.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following paper :—

From H. S. TAYLOR, Esq., Executive Engineer, No. I Periyár Division, to the Superintending Engineer, Periyár Project, dated Periyár, 1st November 1890, No. 303 S.E.

I have the honor to submit for early sanction an estimate of Rs. 1,200 for purchasing four Wells' lights.

2. The two lights of No. 2 size (1,000 candle power) at present in use are found to be insufficient in power and the want of some more of larger size will be much felt if night work is necessary.

Enclosure.

Stores manufactured in Europe, but purchased in India under para. 3 of Government of India Resolution No. 185, dated 10th January 1883.

No.	Description or class of stores.	Number or quantity.	Actual cost of India.			Estimated cost if obtained through India Office.		
			Average price or rate.	Incidental charges, carriage, &c.	Total cost.	Average price or rate.	Incidental charges, carriage, &c.	Total cost.
			RS.	RS.	RS.	RS.	RS.	RS.
1	Wells' light, No. 4 size ..	4	1,065	135	1,200	..	..	..

Periyar,
1st November 1890.

(Signed) A. T. MACKENZIE,
for Executive Engineer, No. I Periyár Division.

(Signed) D. McN. CAMPBELL, Major, R.E.,
Superintending Engineer, Periyár Project.

No. 1958 P.R.

Forwarded to the Chief Engineer, Public Works Department, with the request that the estimate may be sanctioned from the balance at the Chief Engineer's disposal under tools and plant minor and unforeseen items, and the sanction of Government obtained to the local purchase of the article.

2. I concur with the Executive Engineer as to the necessity of the articles; the experience while building the short length of wall just completed shows that the present lights are not sufficient. I also believe that when work is in full progress it will be necessary to keep the workshop machinery going at nights, and for this purpose and the conveyance of materials at least four lights will be required.

Periyar,
6th November 1890.

(Signed) D. McN. CAMPBELL, Major, R.E.,
Superintending Engineer, Periyár Project.

Order—dated 21st November 1890, No. 678 I., Public Works.

The following estimate is sanctioned from the balance of the amount reserved for minor and unforeseen items under tools and plant in the sanctioned estimate for the Periyár Project. The balance still available is Rs. 35,398 :—

Capital Expenditure not charged to Revenue.
49. Irrigation.
Periyár Project.
III. Tools and Plant.
12. Miscellaneous.
New Supplies.

	RS.
Purchasing four "Wells" lights, No. 4 size, estimate	1,200

2. This sanction has been registered as No. 92 I. of 1890-91.

3. The local purchase of the lights is also sanctioned.

(True Extract.)

(Signed) J. PENNYCUICK, Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Chief Engineer for Irrigation.
" Superintending Engineer, Periyár Project.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 21st.

Recd. *Encl.*

G.O., 21st Nov. 1890, No. 678 I.

NOVEMBER.

Wells' Lights, No. 4 Size

The estimate for the local purchase of four — for the Periyár Project, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following papers :—

From the Superintending Engineer, Periyár Project, dated 9th October 1890, No. 1755 P.R.
Office note from the Examiner, Public Works Accounts, dated 28th October 1890, No. 6394.

Note by the Chief Engineer, Public Works Department.

The Superintending Engineer, Periyár Project, in his statement of modifications made in the estimates for the project for the quarter ended on 30th September 1890 reported the following saving which may be transferred to the provision for unforeseen works at the disposal of Government :—

Classification.	Name of work.	Original estimate.	Revised estimate.	Saving.
		RS.	RS.	RS.
(3) Distributaries	Culvert across ...	2,740	730	2,010
F (1) Other cross drainage works ...	Second branch channel in lieu of plan No. 68.	...	...	...

(Signed) J. PENNYCUICK, Colonel, R.E.,
Chief Engineer, P.W.D.

Order—dated 21st November 1890, No. 679 I., Public Works.

The saving of Rs. 2,010 is credited to the balance of the provision for unforeseen works at the disposal of Government which will then be Rs. 46,163.

(True Extract.)

(Signed) J. PENNYCUICK, Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Superintending Engineer, Periyár Project.
" Chief Engineer for Irrigation, with statement.
" Examiner, Public Works Accounts.

IRRIGATION.
ACCOUNT.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November 21st.

Recd. *Encl.*

G.O., 21st Nov. 1890, No. 679 I.

NOVEMBER

Periyar Project

The saving of Rs. 2,010 reported by the Superintending Engineer in his statement of modifications made in the estimates for the — for quarter ending 30th September 1890, credited to the balance of the provision for unforeseen works at the disposal of Government.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following paper :—

From E. J. SEWELL, Esq., Collector of Cuddapah, to the Secretary to Government, Revenue Department, dated Cuddapah, 27th October 1890, No. 1478-Eng.

I have the honor to forward herewith, for approval and publication in the *Fort St. George Gazette*, a draft notification for land required for a distributing channel from the Kurnool-Cuddapah canal in the Tripuravaram village, Cuddapah taluk.

2. The owners of some of the fields are absent from their village, whilst others would not agree to any reasonable settlement of compensation.

No. 6799, Revenue.

Transferred to the Public Works Department (Irrigation Branch).

FORT ST. GEORGE,
5th November 1890.

(Signed) C. A. GALTON,
Secretary to Government.

ORDER—dated 24th November 1890, No. 680 I., Public Works.

Ordered that the notification be published in the *Fort St. George Gazette*.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
„ Superintending Engineer, III Circle.
„ Revenue Department.

IRRIGATION.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 24th.

Recd. *Encl.*

G.O., 24th Nov. 1890, No. 680 I.

NOVEMBER.

Acquisition of Land

Ordered that the notification for — required for a distributing channel from the Kurnool-Cuddapah canal in Tripuravaram village, Cuddapah taluk, be published in the *Fort St. George Gazette.*

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following paper :—

From C. E. HENRY, Esq., Sub-Collector in charge, Tinnevelly, to the Secretary to Government, Public Works Department, dated Tinnevelly, 30th October 1890, No. 278.

I have the honor to inform you that land to the extent of 7 acres and 19 cents in the village of Pudupati, Srívilliputur taluk, is required for the waterspread of Anuppankulam tank of Pudupati village. As the parties do not agree to give up the land, and as it is desirable, in order to ensure to Government an indefeasible title, to acquire the land under the provisions of the Land Acquisition Act X of 1870, I herewith forward a draft declaration under section 6 of the Act, and request that Government will be pleased to order the same to be published in the *Fort St. George Gazette* and to authorise the Deputy Collector, Northern Division, Tinnevelly, to perform for its acquisition the functions of the Collector under the Act.

ORDER—dated 24th November 1890, No. 681 I., Public Works.

Ordered that the notification be published in the *Fort St. George Gazette.*

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, VI Circle.
" Revenue Department.

IRRIGATION.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 24th.

Recd. *Encl.*

G.O., 24th Nov. 1890, No. 681 I.

NOVEMBER.

Acquisition of Land

Ordered that the notification for the — required for the waterspread of Anuppankulam tank in Pudupati village, Srívilliputur taluk, be published in the *Fort St. George Gazette.*

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following paper :—

From Major D. McNEIL CAMPBELL, R.E., Superintending Engineer, Periyár Project, to the Chief Engineer, Public Works Department, dated Periyár, 17th November 1890, No. 2037 P.R.

In continuation of my telegram, dated 15th instant, I have the honor to forward herewith a letter from the Executive Engineer, No. I Periyár Division, applying for an extra grant of Rs. 1½ lakhs and explaining the necessity for it and giving reasons why the application was not made before.

2. You will see that the balance on 1st December against which the Executive Engineer can apply for further funds will be only Rs. 7,802, and consequently it is essential that extra funds should be granted at once or otherwise the work will have to cease about the middle of next month.

3. The balance of grant in No. II division on the 1st November was Rs. 1,75,012, and as a considerable sum out of this will be required for compensation, I do not think it advisable to transfer any money to No. I division; but if funds cannot be got from elsewhere at once, rupees one lakh may be transferred temporarily from No. II division to No. I division and the whole sum of 1½ lakhs can be granted later on—one lakh would then be given to No. II and half lakh to No. I division.

Enclosure.

From H. S. TAYLOR, Esq., Executive Engineer, No. I Periyár Division, to the Superintending Engineer, Periyár Project, dated Periyár, 17th November 1890, No. 336 S.E.

I have the honor to forward herewith copy of the statement of grant and expenditure up to 1st November sent to the Examiner with application for credit for December.

2. From this it will be seen that on 1st November the cash and treasury balances together with the new credit for November amounted to Rs. 73,518. I have subsequently applied for a supplemental credit of Rs. 35,000, amounting in all to Rs. 1,08,518.

3. This seems a very large figure of credit for one month, but it is accounted for by the fact that during the latter part of October the treasury officers were unable to cash my cheques, so that out of this figure has to come about half the expenditure of October and the whole of November and it will probably carry as well into December.

4. But after deducting this sum from the balance of the grants there is left—*vide* statement—only Rs. 7,802 against which to apply for further funds.

5. I request therefore that an extra grant of one lakh and a half may be applied for.

6. The reason that the requirements now are so much larger than the forecast in the budget is that owing to an abnormally dry season we have been able to do three good months' work more than has ever been the case before or could have been expected.

7. Assuming that the present balance will be exhausted in December, and the monthly expenditure at about half a lakh, I estimate the extra grant required at a lakh and a half.

8. Looking at the progress reports of works to the end of October, the figure shows large balances of grants unexpended, and it seemed most unlikely that any further grant would be required until January, but on my having to apply for a supplemental credit for November, it became apparent that though there would probably be enough cash in hand to last through December, the balances at the treasuries would be quite inadequate, and I am therefore obliged to make this sudden requisition.

ORDER—dated 25th November 1890, No. 685 I., Public Works.

A sum of Rs. 50,000 is transferred for the present from the existing grant for the No. II Periyár division for the current year to the No. I Periyár division. The Superintending Engineer will submit as soon as possible a statement showing the distribution by departmental heads and component works of the revised grants for both the divisions.

2. The Government of India will be requested by telegraph to grant an additional allotment of Rs. 1,50,000 for the project.

3. Ordered that the following telegram be sent—

"Additional grant of 1,50,000 urgently required for Periyár Project. Dry season has greatly facilitated work, and progress has exceeded expectation."

and that a copy of these Proceedings be forwarded to the Government of India.

(Here enter No. 686 I., dated 25th November 1890.)

(True Extract.)

(Signed) J. PENNYCUICK, Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Superintending Engineer, Periyár Project, with one enclosure.
" Chief Engineer for Irrigation.
" Examiner, Public Works Accounts.

ENDORSEMENT—dated 25th November 1890, No. 686 I., Public Works.

Forwarded.

(By Order.)

(Signed) J. PENNYCUICK, Colonel, R.E.,
Secretary to Govt., P.W.D.

IRRIGATION.
ACCOUNT.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 25th.

Recd. *Encl.*

G.O., 25th Nov. 1890, Nos. 685 I., 686 I.

NOVEMBER.

Periyar Project

Forwarding copy of Proceedings requesting the Government of India to grant an additional allotment of $1\frac{1}{2}$ lakhs of rupees for the Periyár project.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following paper :—

Telegram from the Superintending Engineer, II Circle, to the Joint Secretary to Government, Public Works Department, Irrigation Branch, dated Bezváda, 16th November 1890, No. 32.

Please allot Rs. 2,000 for the present for investigation of irrigation works ordered in G.O., No. 2857 W., and direct Examiner to grant credit of Rs. 1,000 to Mr. S. B. Murray.

Order—dated 25th November 1890, No. 687 I., Public Works.

The sum of Rs. 2,000 required for investigating certain irrigation projects in the upland taluks of the Kistna district is appropriated from the balance of the reserve under Irrigation and Navigation Works for which neither Capital nor Revenue Accounts are kept, Rs. 1,606 from the grant for Minor Original Works, Rs. 370 from that for Establishment and Rs. 24 from that for Tools and Plant.

2. The Superintending Engineer will report as soon as possible the distribution by departmental heads of the sum of Rs. 2,000 now appropriated.

3. The Examiner of Public Works Accounts will arrange for a credit of Rs. 1,000 being granted Mr. S. B. Murray, the Assistant Engineer on special duty in the Kistna district.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, II Circle.
,, Examiner, Public Works Accounts.
,, Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 25th.

Recd. *Encl.*

G.O., 25th Nov. 1890, No. 687 I.

NOVEMBER.

Irrigation Projects in the Upland Taluks of the Kistna District

Rupees 2,000 required for investigating certain — appropriated from the reserve, and the Examiner directed to arrange for a credit of Rs. 1,000 being granted Mr. S. B. Murray, Assistant Engineer on special duty n the Kistna district.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following paper:—

Administration Report of the Public Works Department, Irrigation Branch, for 1889-90.

No. 177 I.

Submitted to Government.

CHEPÂK,
20th November 1890.

(Signed) G. T. WALCH,
Chief Engineer for Irrigation.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

ORDER—dated 25th November 1890, No. 688 I., Public Works.

The Administration Report of the Public Works Department, Irrigation Branch, for 1889-90, as drawn up by the Chief Engineer for Irrigation, is approved, and forty copies thereof will be forwarded to the Government of India.

(Here enter No. 689 I., dated 25th November 1890.)

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
To all Superintending Engineers.
To the Consulting Engineer for Railways.
" Examiner, Public Works Accounts.
" Public Department.
" Revenue Department.

ENDORSEMENT—dated 25th November 1890, No. 689 I., Public Works.

Forwarded.

(By Order.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

IRRIGATION.

Govt. of {1890} Madras

PUBLIC WORKS.

Dated November, 25th.

Recd. *Encl.*

G.O., 25th Nov. 1890, Nos. 688 I., 689 I.

NOVEMBER.

Forwarding copies of the Administration Report of the Public Works Department, Irrigation Branch, for 1889-90.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following papers :—

From Colonel W. H. Burton, R.E., Superintending Engineer, V Circle, to the Chief Engineer, Public Works Department (through the Examiner, Public Works Accounts), dated Chepâk, 30th October 1890, No. 3513.

With reference to para. 3 of G.O., No. $\frac{544}{A}$ I., dated 26th September 1890, I have the honor to forward an indent on the Director-General of Stores in England for a Priestman's dredger, size A, with engine, &c., complete, required for the Godávari Eastern division.

Office note from the Examiner, Public Works Accounts, dated Madras, 4th November 1890, No. 6522/153.

The accompanying letter from the Superintending Engineer, V Circle, to the Chief Engineer, Public Works Department, No. 3513, dated 30th October 1890, with an indent (No. 9 of 25th October 1890) for English stores for transmission to the Secretary of State, is forwarded for necessary action.

2. I certify that funds to meet the estimated outlay in England in connection with this indent during the year 1890-91 have been provided by the Local Government to the extent of £616 in the estimate of the Public Works Department for that year.

Order—dated 26th November 1890, No. 690 I., Public Works.

Ordered that the indent be forwarded to the Home Government for compliance.

(Here enter No. 691 I., dated 26th November 1890.)

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineer, I Circle.
" " " V "
" Examiner, Public Works Accounts.
" Chief Engineer for Irrigation.

IRRIGATION.
ACCOUNT.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 26th.

Recd. *Encl.*

G.O., 26th Nov. 1890, No. 690 I.

NOVEMBER.

Indent

The — for a Priestman's dredger with engine, &c., complete, required for the Godávari Eastern division, ordered to be forwarded to the Home Government for compliance.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Letter—from

G. T. WALCH, Esq.,
Joint Secretary to the Government of Madras,
Public Works Department,
Irrigation Branch,

To

The DIRECTOR-GENERAL of STORES,
India Office, London.

Sir,

I am directed to forward, for favor of early compliance, an indent, in duplicate, for a Priestman's dredger with engine, &c., complete, required for the Godávari Eastern division.

2. The necessary certificate by the Examiner of Public Works Accounts is embodied in the Proceedings* of this Government, forwarded herewith.

* No. 690 I., dated 26th November 1890.

(Here enter No. 692 I., dated 26th November 1890).

I have the honor to be,
Sir,
Your most obedient servant,

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

Fort St. George,
26th November 1890.

Endorsement—dated 26th November 1890, No. 692 I., Public Works.

Copy of the above, with copy of the indent, forwarded to the Government of India.

(By Order.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

IRRIGATION.
ACCOUNT.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 26th.

Recd. *Encl.*

26th Nov. 1890, Nos. 691, 692 I.

NOVEMBER.

Forwarding, with copy of indent, copy of Proceedings forwarding to the Home Government an indent for a Priestman's dredger with engine, &c., complete, required for the Godávari Eastern division.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following paper :—

From Lieut.-Colonel A. C. SMITH, R.E., Superintending Engineer, VI Circle, to the Chief Engineer for Irrigation, dated Trichinopoly, 11th November 1890, No. 1588 T. J.

With reference to my inspection notes of 2nd November 1890, I have the honor to request you will be good enough to obtain an allotment of Rs. 3,000 at an early date for expenditure during the current year in Negapatam division under Agricultural, Original Works, River Conservancy, for the work "Coraiyaur straight cut between Coraiyaur head works and railway bridge near Nidamangalam," estimate Rs. 11,200, sanctioned in G.O., No. 241 I., of 22nd April 1890.

ORDER—dated 26th November 1890, No. 693 I., Public Works.

The sum of Rs. 3,000 required for original works under River Conservancy in the Negapatam division is appropriated by transfer from the balance of the reserve for repairs under Irrigation and Navigation Works for which neither Capital nor Revenue Accounts are kept, Rs. 690 for establishment and Rs. 45 for tools and plant charges being transferred from the latter head to Agricultural Works.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, VI Circle.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 26th.

Recd. *Encl.*

G.O., 26th Nov. 1890, No. 693 I.

NOVEMBER.

Coraiyaur straight cut

Rs. 3,000 allotted for expenditure during the current year for the — between Corai yaur head and railway bridge near Nída-mangalam, Negapatam division.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers :—

From the Superintending Engineer, VI Circle, dated 22nd October 1890, No. 710 M.D.

REPORT to accompany the estimate for improving and extending the Uthamut Anicut, Madura District.

The estimate has been framed in accordance with the final proposals submitted by Mr. Hughes and approved by the Chief Engineer, Periyár Project.

2. *Periyár water.*—The old anicut being in bad repair, and it being necessary to pass the water for the Periyár Project through it to prevent this water being taken off for the irrigation under the anicut, it was finally determined to rebuild the anicut to its present length of 200 feet and to build a new anicut 100 feet long a little further up the river. These questions have already been settled and a design was prepared by Mr. Hughes.

To pass the Periyár water 1,500 cubic feet per second four vents have been provided in the old anicut, each $9\frac{1}{2} \times 6$. The vents will be closed by vertical planks 6 feet 3 inches long and $2\frac{1}{2}$ inches thick resting at bottom in a groove 6 inches wide and 3 inches deep in the sill of vent and at top against a moveable beam $4\frac{1}{2}'' \times 12''$ as shown on plan; this will enable the lascars to work the shutters. The beam will rest at top in recesses $1' \times 1' \times 1'$.

3. *Flood discharge.*—The maximum flood discharge of the river is taken as 11,225 cubic feet per second. The aggregate length of the old and new anicuts is 300 feet with four vents each $9\frac{1}{2}' \times 6'$ in the former, their crest level being 1278·25.

4. *Old anicut.*—The old anicut will be rebuilt 6 feet wide at top with front batter 1 in 2, the old wings will be kept. The apron is 18 feet wide of cut stone three-quarter foot thick resting on brick-work and concrete. There is sufficient old cut stone for crest of the anicut in the old work; it will require a certain amount of dressing, and is estimated at eight annas per cubic foot.

5. *New anicut.*—The plan shows the design of the new anicut.

6. *Allotment.*—Rupees 10,000 have been allotted this year for the work.

(Signed) A. C. SMITH, Lt.-Col., R.E.,
Superintending Engineer, VI Circle.

22nd October 1890.

Office note from the Chief Engineer for Irrigation, dated Madras, 29th October 1890, No. 225.

Herewith the proposals in connection with the Uthamut anicut, Suruliyár, in order that you may see if the arrangements for passing on the Periyár water are such as you wish. They are in accordance with clause (*b*), para. 2 of your "note"* with your letter No. 1047, dated 4th July 1890.

* In file herewith.

2. It will of course be impossible to manipulate the shutters (baulks) when water is passing over the crest of the anicut, and without an intermediate cross-bar it *will not be possible to get the baulks down when there is any appreciable quantity of water running through the vents*, but I think you informed me that it is probable that the shutters will have to be taken out only once a year when water is below crest of anicut and put in again only when there is very little or no water passing down.

Office note from the Chief Engineer, Public Works Department, dated 1st November 1890, No. 4465 C.

The arrangements for passing the Periyár water will do I think.

2. The conditions are as stated in the last paragraph of your note. In point of fact I do not believe the shutters will ever be put in at all.

No. 176 I.

Note by the Chief Engineer for Irrigation.

Uthamut Anicut.

This anicut is the second on the Suruli river and supplies the Uthamut channel which irrigates directly 1,953 acres, and also supplies three tanks. The total area dependent on it is 2,469 acres. It is situated in a very awkward position, being at the apex of an abrupt curve in the course of the river which doubles back on its previous course immediately below the anicut, leaving only a narrow strip of land between the upper and the lower portion of the stream. The river has attempted to straighten itself by breaching through this neck, but the breach was closed at the same time as the other repairs were carried out to the anicut and channel.

2. The anicut in its present state is 200 feet long and consists of a mass of dry stone with a skin wall in front and some concrete on top. The dry stone has been undermined and is being rapidly washed away. In 1884 an estimate for repairing the anicut and channel was prepared by the Tank Maintenance Scheme and was sanctioned and executed. Under the provisions of this estimate a new wing wall was built and the crest was levelled with a course of concrete, but no extensive repairs to the body of the anicut appear to have been then necessary. It was not till January 1888 that the Superintending Engineer, VI Circle, found on his inspection that the rear of the anicut had been undermined by the last flood and that the whole structure would very soon have to be rebuilt. This sudden deterioration was probably due to the extra strain brought on the anicut consequent on the closure of the breach channel above it.

3 The necessity for rebuilding this work is enhanced by the fact that the water from the Periyár reservoir will have to pass it during the greater portion of the year, as soon as that project comes into operation, and the present design has been prepared with the objects of straightening the course of the river and providing sufficient water-way for it and also of affording a passage for the Periyár water.

4. In considering the question of restoring the work, three different proposals have been made:—

1st.—To rebuild the existing anicut and to extend it by 200 feet at its right flank.

2nd.—To close the site of the existing work entirely and to build a new anicut 300 feet long at the site of the old breach.

3rd.—To rebuild the existing anicut to its present length of 200 feet and to build an auxiliary one 100 feet long somewhere near the site of the old breach.

5. After careful consideration the third proposal has been adopted, as in addition to giving a straight course to the river it will be easier to keep the head of the Uthamut channel free from silt by means of the vents for Periyár water which will be constructed in the old anicut.

6. Numerous trial pits have been dug along the right bank of the stream and the site now selected is considered the best available.

7. The arrangements for passing down the Periyár water have received the approval of Colonel Pennycuick, who has also been consulted with regard to the general features of the design. Four vents have been provided in the old anicut (to be rebuilt) each 9′ 6″ × 6′. These vents will be closed when necessary by baulk shutters. The extra cost of providing them should legitimately be charged to the Periyár Project, but the amount is so small that it is not considered necessary that any such charge should be made.

CHEPÂK,
19th November 1890.

(Signed) G. T. WALCH,
Chief Engineer for Irrigation.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

ORDER—dated 27th November 1890, No. 695 I., Public Works.

The following estimate is sanctioned :—

Irrigation.
43. Minor Works and Navigation.
Irrigation and Navigation.
Works for which neither Capital nor Revenue Accounts are kept.
Original Works.
Madura Division.
Suruli Minor Basin.

	RS.
Rebuilding the old Uthamut anicut, No. 52 of list of "Imperial works" and constructing a new auxiliary one a little higher up the Suruli river, estimate	27,400

2. This sanction has been registered as No. 94 I. of 1890-91.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, VI Circle, with 17 enclosures.
" Superintendent of Works, No. I Periyár Division.
" Examiner, Public Works Accounts.
" Revenue Department.
" Editors' Table.

IRRIGATION.
ACCOUNT.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 27th.

Recd. *Encl.*

G.O., 27th Nov. 1890, No. 695 I.

NOVEMBER.

Uthamut Anicut, Madura Division

Estimate for rebuilding the old — and constructing a new auxiliary one a little higher up the Suruli river, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers:—

From J. HANNAN, Esq., Superintending Engineer, II Circle, to the Chief Engineer for Irrigation, dated Bezváda, 29th October 1890, No. 1890 K.S.

I have the honor to forward herewith for sanction a revised estimate with comparative statement for the work constructing aqueduct for Iskapalle channel over Bhattiprole drain.

2. The original estimate which was sanctioned in G.O., No. 417 I. of 1887-88, amounted to Rs. 23,770.

3. The excess over the sanctioned estimate comes to Rs. 7,100; out of this sum Rs. 3,781 represents excess caused by a sanctioned deviation from the original estimate in increasing the thickness of concrete in foundations from 3½ to 5 feet, which was necessitated by the bad soil met with in the foundations. There was also a slight increase in rate due to the use of surki not provided in the original estimate. The above sum is arrived at by adding together the cost of archwork Rs. 2,157 and the excesses under concrete Rs. 1,624 as shown in the comparative statement. The excess would be more, but a saving is effected of Rs. 1,300 by substituting brick for concrete arches.

4. The other items of excess are sufficiently explained in the comparative statement.

5. The contribution from local funds will now have to be increased proportionately to Rs. 10,609 exclusive of establishment charges.

No. 174 I.

Note by the Chief Engineer for Irrigation.

The frequency with which estimates are exceeded in the Kistna district has already been commented on—see Proceedings of the Madras Government, No. 675 I., dated 19th November 1890.

2. In this case it appears that Rs. 3,781 are due to "deviations" sanctioned by the Superintending Engineer, but he exceeded his powers in giving such sanctions; most of the remainder of the excess is due to the bad management which has resulted in the work being in hand for three working seasons instead of being carried out in one.

3. The necessity for the revised estimate was brought to notice in para. 21 (*f*) of inspection notes with Proceedings of the Madras Government, No. 193 I., dated 24th March 1890, and must have been apparent even before then.

CHEPÂK,
14th November 1890.

(Signed) G. T. WALCH,
Chief Engineer for Irrigation.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

Order—dated 27th November 1890, No. 696 I., Public Works.

The revised estimate, amounting to Rs. 30,900, for constructing an aqueduct to carry the Iskapalle channel over the Bhattiprole drain in the Kistna Western division, is sanctioned in supersession of the estimate of Rs. 23,770 sanctioned for the work in G.O., No. 417 I., dated 18th July 1888. Of the excess of Rs. 7,130, Rs. 2,440 will be debited to local funds in addition to the sum of Rs. 8,169 sanctioned in the above order, to be so charged, the balance, viz., Rs. 4,690, being met from the provision now available for unforeseen works of the Kistna delta system, which will then be reduced to Rs. 1,79,866.

2. This sanction has been registered as No. 95 I. of 1890-91, and classified as shown below:—

Capital Expenditure not charged to Revenue.
49. Irrigation.
Kistna Delta System.
Western Section.
I. Works.
(4) Drainage and Protective Works.
C. Works.

	RS.
Aqueduct to carry the Iskapalle channel, estimate	30,900

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, II Circle, with three enclosures.
" Examiner, Public Works Accounts.
" Revenue Department.
" Local and Municipal Department.

IRRIGATION.
ACCOUNT.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 27th.

Recd. *Encl.*

G.O., 27th Nov. 1890, No. 696 I.

NOVEMBER.

Aqueduct

Revised estimate for constructing an — to carry the Iskapalle channel over the Bhattiprole drain in the Kistna Western division, sanctioned with remarks.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper:—

From Colonel H. SMALLEY, R.E., Superintending Engineer, III Circle, to the Chief Engineer for Irrigation, dated Bellary, 11th September 1890, No. 1719.

I have the honor to submit an estimate, amounting to Rs. 7,900, accompanied by papers as per margin, for cutting a small branch irrigation channel from the Kurnool-Cuddapah canal at 135 miles 75 chains left bank to irrigate the lands attached to the Suddapalli, &c., villages in the Kurnool and Cuddapah districts.

1 Longitudinal and cross sections of Suddapalli channel.	1 General abstract.
1 Tracing of masonry works.	1 Detailed estimate with calculation sheet.
1 Survey plan of proposed channel.	1 Original and revised reports.
	1 Revenue statement.

2. It will be seen from the Revenue officer's statement that rather upwards of 900 acres in aggregate would be watered by the proposed channel, though all this extent would not be taken up at once for wet cultivation; but it is thought if the ryots were satisfied with the first year's result on a small scale, the whole would gradually be brought under the influence of the channel and eventually the returns would be very good.

ENCLOSURE.

REPORT to accompany the estimate for a channel to irrigate the fields of Suddapalli, Chintacommadinna and Bhojanum villages, Sirvél and Jammalamadugu taluks, and to take off at 135 miles 75 chains, left bank of Main Canal.

Amount of estimate ... ... Rs. 7,900

An estimate for this channel was submitted in November 1884, but was returned for revision as regards discharges. It is now resubmitted thoroughly revised. A readjustment of the drops has been made so as to have as little embankment as possible. A channel with a depth of cutting equal to depth of water is very much less liable to breaches. The masonry works as now designed are more expensive than those originally proposed, but they are less liable to be destroyed and are more effective.

The copy of original report is enclosed, as it shows that the excavation of the channel is desirable. Enclosed also are reports from the Collectors of Kurnool and Cuddapah, as the

channel will irrigate the lands of both districts. The Collector of Kurnool reports that 633·83 acres will be taken up, while the Collector of Cuddapah reports that 268 acres will be taken up in his district, both together making a total of 902 acres.

2. Major Smart, R.E , when submitting the first estimate reported an anticipated area of irrigation of 1,500 acres, and the revised estimate was framed on this basis prior to the receipt of information from the Collectors now recorded. It does not seem advisable to recast the estimate again, allowing only for 900 acres. The recasting may effect a reduction in the estimate of about Rs. 1,000, but precious time would be lost, and it is by promptly supplying water where required that an improvement in irrigation will be effected.

3. The channel is designed to irrigate 1,500 acres and is three miles long. The first distributary takes off at 108 chains and the second 171 chains. The Superintending Engineer in his No. 2267, dated 13th February 1885, orders the following discharges to be provided for—first section for 1,500 acres to discharge 34·1 cubic feet per second; second section for 900 acres to discharge 22 cubic feet per second; third section for 800 acres to discharge 19·5 cubic feet per second.

First Section, 0 to 108 *chains,* to irrigate 1,500 acres; discharge to be 34·1 cubic feet per second, bottom width 5⅔ feet, side slopes 1½ to 1, depth of water 3 feet, velocity 1·25 feet per second, area 30 square feet, and D allowed 37½ cubic feet per second.

Second Section, 108 *to* 171 *chains,* to irrigate 900 acres; discharge to be 22 cubic feet per second, bottom width 3 feet, side slopes 1½ to 1, depth of water 3 feet, velocity 1·11, area 22½ square feet, and D allowed 25 cubic feet per second.

Third Section, 171 *chains to* 240 *chains,* to irrigate 800 acres; discharge to be 19·5 cubic feet per second, bottom width 7 feet, side slopes 1½ to 1, depth of water 2 feet, velocity 1·00, area 20·00 square feet, D allowed 20 cubic feet per second.

4. So as to have a cutting almost equal to depth of water the bed of channel commences at 99·23 or 2 feet below canal bed. The bed-fall throughout is 1⅓ feet per mile. Should it be necessary hereafter to increase discharge down the channel it would be easy to strengthen the banks and to allow a greater depth of water.

5. *Escapes.*—The country is not much cut up apparently with cross drainages; escapes however will be necessary, and for this purpose large openings will be left in the spoil banks at places where depth of water equals depth of cutting.

6. It is necessary to provide drops; these are arranged as follows:—

	Chains.	Feet.		Chains.	Feet.
Drop at	108	3	Drop at	180	2
Do. at	129	3	Do. at	198	2
Do. at	144	2	Do. at	216	2
Do. at	156	2			

7. Roadway culverts are proposed as follows:—At chains 45, 96, 123, 174, 234.

The openings allowed are the same for all culverts as actual requirements do not vary sufficiently to justify a design for each.

8. The land required will be demarcated as soon as it has been given over. Provision has been made in the estimate for demarcation pillars

9. No provision has been made for subsidiary channels as they require gradual development and will of necessity delay the submission of the completion report for the main channel.

(Signed) J. C. JOHNSTON,
Executive Engineer.

19th June 1890.

No. 178 I.

Submitted to Government. The estimate as slightly modified in this office amounts to Rs. 7,900.

CHEPÂK,
19th November 1890.

(Signed) G. T. WALCH,
Chief Engineer for Irrigation.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

ORDER—dated 27th November 1890, No. 697 I., Public Works.

The following estimate is sanctioned :—

Irrigation.
42. Major Works (Working Expenses).
Kurnool-Cuddapah Canal.
Fifth Section.
1-A. Extensions and Improvements.
3. Distributaries.
L. Earthwork.

	RS.
Cutting a branch channel at 135 miles 75 chains left bank, estimate...	7,900

2. This sanction has been registered as No. 96 I. of 1890-91.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, III Circle, with enclosures.
,, Examiner, Public Works Accounts.
,, Revenue Department.
,, Editors' Table.

IRRIGATION.
ACCOUNT.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated November, 27th.

Recd. *Encl.*

G.O., 27th Nov. 1890, No. 697 I.

NOVEMBER.

Channel

Estimate for cutting a branch — from Kurnool-Cuddapah canal at 135 miles 75 chains left bank to irrigate certain lands in the Kurnool and Cuddapah districts, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

TABULAR STATEMENT OF MISCELLANEOUS PROCEEDINGS AND MATTERS OF ROUTINE.

IRRIGATION,

FOR THE MONTH OF NOVEMBER 1890.

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
Private wells.—Proceedings, Revenue Department, communicating endorsement of the Government of India communicating sanction of the Secretary of State to the permanent adoption of the rules framed for assessing lands irrigated by —, communicated to the Chief Engineer for Irrigation and to Superintending Engineers for information.	1st Nov. 1890, No. 619 I.	12th June 1884, No. 558 I.
General Mullins' Irrigation Manual.—Ordered that the Government of India be addressed in regard to its request to be furnished with a copy of — together with such of the type drawings of masonry works relating to large Irrigation systems in Madras for transmission to the Italian Government.	13th do. do. No. 651 I.	......
The Government of India addressed ...	13th do. do. No. 652 I.	......
Water-supply in the Cauvery.—Telegram from the Agent to Dharmapuram Mutt in regard to the — and report thereon by the Superintending Engineer, recorded.	13th do. do. No. 658 I.	31st Jan. 1888, No. 74 I.
Rushikulya Project.—The Government of India asked by telegram for an additional grant of Rs. 92,000 for the —.	17th do. do. No. 667 I.	......
Water-tax establishment.—Proceedings in the Revenue Department passing orders on the — in the Zemindari delta tracts of the Kistna district, communicated to Superintending Engineers, I and II Circles, for information.	18th do. do. No. 668 I.	5th Feb. 1890, No. 67 I.

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
Tanks irrigating 50 acres or less.—Proceedings of the Revenue Department requesting the Board of Revenue to report on the proposal of the Government of India to abandon all — dealing fully with the financial effect of the measure, communicated to the Chief Engineer for Irrigation.	19th Nov. 1890, No. 677 I.	......
Statement of objectionable items.—Orders on the — VI Circle (Tanjore division), for August 1890.	25th do. do. No. 682 I.	26th Aug. 1889, No. 406 I.
Statement of objectionable items.—Orders on the —, III Circle, for period ending 31st August 1890.	25th do. do. No. 683 I.	4th Sept. 1890, No. 487 I.
Statement of objectionable items —Orders on the —, IV Circle, for period ending 31st August 1890.	25th do. do. No. 684 I.	21st Aug. 1890, No. 453 I. 17th Oct 1890, No. 592 I. 22nd Sept. 1888, No. 560 I. 25th Oct 1888, No. 645 I. 14th Jan. 1889, No. 9 I. 26th Feb. 1889, No. 99 I. 27th Mar. 1889, No. 171 I. 22nd May 1889, No. 249 I. 22nd June 1889, No. 296 I. 17th Feb. 1890, No. 95 I. 13th May 1890, No 269 I. 24th June 1890, No. 351 I. 3rd Sept. 1890, No. 479 I.
Yendapalli-Lingasamudram tank, Godávari Western division.—Ordered that the Resident, Hyderabad, be addressed in the Political Department on the subject of the obstruction of the water-supply to the —.	27th do. do. No. 694 I.	......